



960296.99080 - SEQ ID LISTING.txt  
SEQUENCE LISTING

<110> Atie, Alan  
Stehr, Jonathan P  
Schuster, Kathryn L  
Clee, Susanne M

<120> GENES ASSOCIATED WITH TYPE II DIABETES

<130> 960296.99080

<140> 10/655,915

<141> 2003-09-05

<150> US 60/409,525

<151> 2002-09-09

<160> 14

<170> PatentIn version 3.3

<210> 1

<211> 5757

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (228)..(3893)

<400> 1

```
atcacccctct ggacaagaga acgggcgagc gggagctagg aggggaagagt ggagaggacc      60
ggcgaggcgcc gccagccgga gccacctctt tcccggccgc cccctcccca ctccccctac      120
acacacacgc tcgctcgctc gccggcgcgcc gcacaccccc cgcgccggac ccgcacctcg      180
gcggggcgcca cacactcggc agcccagagcc gcggtagccg cagcggg  atg gag gcg      236
                               Met Glu Ala
                               1
gcg cgc acg gag cgc ccc gca ggc agg ccg ggg gcg ccg ctt gtc cgg      284
Ala Arg Thr Glu Arg Pro Ala Gly Arg Pro Gly Ala Pro Leu Val Arg
5                               10                               15
acg ggg ctc cta ctc ttg tcg acg tgg gtc ctg gcc ggc gcc gag atc      332
Thr Gly Leu Leu Leu Leu Ser Thr Trp Val Leu Ala Gly Ala Glu Ile
20                               25                               30                               35
act tgg gac gcg aca ggc ggt ccc gga cgc ccg gcg gcc ccg gct tcg      380
Thr Trp Asp Ala Thr Gly Gly Pro Gly Arg Pro Ala Ala Pro Ala Ser
                               40                               45                               50
cgg cca ccg gcg ttg tct cca ctc tcg ccg cgg gca gtg gcc agc cag      428
Arg Pro Pro Ala Leu Ser Pro Leu Ser Pro Arg Ala Val Ala Ser Gln
                               55                               60                               65
tgg ccg gag gag ctg gcg tcg gcg cgg aga gcc gcc gtg ctg ggg cgc      476
Trp Pro Glu Glu Leu Ala Ser Ala Arg Arg Ala Ala Val Leu Gly Arg
70                               75                               80
cgg gcc gga cca gag ctg ctg ccc cag cag ggc ggc ggc aga ggc ggt      524
Arg Ala Gly Pro Glu Leu Leu Pro Gln Gln Gly Gly Gly Arg Gly Gly
85                               90                               95
gag atg cag gtg gaa gcc gga ggg aca tca ccg gca ggc gag cgg cgg      572
Glu Met Gln Val Glu Ala Gly Gly Thr Ser Pro Ala Gly Glu Arg Arg
100                               105                               110                               115
ggc cgg ggc atc cca gct cct gcc aag ctt ggc ggc gcg agg agg agt      620
Gly Arg Gly Ile Pro Ala Pro Ala Lys Leu Gly Gly Ala Arg Arg Ser
                               120                               125                               130
cgc cgg gcg cag ccc cca atc acc cag gaa cgc ggg gac gcc tgg gcc      668
```

960296.99080 - SEQ ID LISTING.txt

Arg	Arg	Ala	Gln 135	Pro	Pro	Ile	Thr	Gln 140	Glu	Arg	Gly	Asp	Ala 145	Trp	Ala	
act	gct	ccg	gcc	gat	ggt	tcc	aga	gga	agc	cgt	ccc	ctt	gct	aag	ggt	716
Thr	Ala	Pro 150	Ala	Asp	Gly	Ser	Arg 155	Gly	Ser	Arg	Pro	Leu 160	Ala	Lys	Gly	
tcc	cgg	gag	gag	gtg	aag	gcg	ccg	cgg	gct	ggg	ggg	tcg	gcg	gct	gaa	764
Ser	Arg 165	Glu	Glu	Val	Lys	Ala 170	Pro	Arg	Ala	Gly	Gly 175	Ser	Ala	Ala	Glu	
gac	ctc	cgg	ctg	ccc	agc	acc	tcc	ttc	gcg	ctg	acc	ggg	gac	tcg	gcc	812
Asp 180	Leu	Arg	Leu	Pro	Ser 185	Thr	Ser	Phe	Ala	Leu 190	Thr	Gly	Asp	Ser	Ala 195	
cac	aac	caa	gcc	atg	gtg	cac	tgg	tcg	gga	cac	aac	agc	agc	gtc	ata	860
His	Asn	Gln	Ala	Met 200	Val	His	Trp	Ser	Gly 205	His	Asn	Ser	Ser	Val 210	Ile	
ctt	atc	ctg	acg	aag	ctg	tat	gac	ttc	aac	ctg	ggc	agc	gtg	act	gag	908
Leu	Ile	Leu	Thr 215	Lys	Leu	Tyr	Asp	Phe 220	Asn	Leu	Gly	Ser	Val 225	Thr	Glu	
agt	tca	cta	tgg	agg	tcg	aca	gat	tat	ggc	acc	acc	tat	gaa	aag	ctg	956
Ser	Ser	Leu 230	Trp	Arg	Ser	Thr	Asp 235	Tyr	Gly	Thr	Thr	Tyr 240	Glu	Lys	Leu	
aat	gac	aaa	gtg	ggt	ttg	aag	act	gtc	ctc	agt	tac	ctc	tat	gtc	aat	1004
Asn	Asp 245	Lys	Val	Gly	Leu	Lys 250	Thr	Val	Leu	Ser	Tyr 255	Leu	Tyr	Val	Asn	
cca	acc	aac	aaa	agg	aag	att	atg	ctt	ctc	agt	gat	cct	gag	atg	gag	1052
Pro 260	Thr	Asn	Lys	Arg	Lys 265	Ile	Met	Leu	Leu	Ser 270	Asp	Pro	Glu	Met	Glu 275	
agc	agc	ata	ttg	atc	agc	tca	gac	gaa	ggg	gcg	acc	tat	cag	aag	tat	1100
Ser	Ser	Ile	Leu	Ile 280	Ser	Ser	Asp	Glu	Gly 285	Ala	Thr	Tyr	Gln	Lys 290	Tyr	
cgg	ctc	acc	ttc	tat	atc	cag	agc	ctg	ctc	ttt	cat	ccc	aag	caa	gag	1148
Arg	Leu	Thr	Phe 295	Tyr	Ile	Gln	Ser	Leu 300	Leu	Phe	His	Pro	Lys 305	Gln	Glu	
gac	tgg	gtg	ctg	gcc	tac	agt	ttg	gat	caa	aag	ctc	tac	agc	tcc	atg	1196
Asp	Trp	Val 310	Leu	Ala	Tyr	Ser	Leu 315	Asp	Gln	Lys	Leu	Tyr 320	Ser	Ser	Met	
gac	ttt	gga	aga	cgg	tgg	caa	ctc	atg	cat	gaa	cgc	atc	aca	ccc	aac	1244
Asp	Phe 325	Gly	Arg	Arg	Trp	Gln 330	Leu	Met	His	Glu	Arg 335	Ile	Thr	Pro	Asn	
agg	ttt	tat	tgg	tcg	gtg	gcc	gga	ttg	gat	aag	gag	gcg	gac	ctg	gtg	1292
Arg	Phe	Tyr	Trp	Ser	Val 345	Ala	Gly	Leu	Asp	Lys 350	Glu	Ala	Asp	Leu	Val 355	
cac	atg	gag	gtg	cgg	acc	acg	gat	gga	tat	gct	cac	tac	ctc	acc	tgc	1340
His	Met	Glu	Val	Arg 360	Thr	Thr	Asp	Gly	Tyr 365	Ala	His	Tyr	Leu	Thr 370	Cys	
agg	atc	cag	gaa	tgt	gcc	gag	aca	act	aga	agt	ggg	cct	ttt	gcc	cgc	1388
Arg	Ile	Gln	Glu 375	Cys	Ala	Glu	Thr	Thr 380	Arg	Ser	Gly	Pro	Phe 385	Ala	Arg	
tcc	att	gac	atc	agt	tcc	ctg	gtt	gtc	cag	gat	gaa	tat	atc	ttc	att	1436
Ser	Ile	Asp 390	Ile	Ser	Ser	Leu	Val 395	Val	Gln	Asp	Glu	Tyr 400	Ile	Phe	Ile	
cag	gta	aca	act	agt	gga	aga	gcc	agc	tac	tac	gtg	tct	tat	cga	aga	1484
Gln	Val 405	Thr	Thr	Ser	Gly	Arg 410	Ala	Ser	Tyr	Tyr	Val 415	Ser	Tyr	Arg	Arg	
gag	gcc	ttt	gct	cag	ata	aag	ctg	cct	aag	tac	tcg	ttg	cca	aag	gac	1532
Glu	Ala	Phe	Ala	Gln	Ile 425	Lys	Leu	Pro	Lys	Tyr 430	Ser	Leu	Pro	Lys	Asp 435	

atg	cac	atc	atc	agt	aca	gac	gag	aac	caa	gta	ttt	gct	gcg	gtc	caa	1580
Met	His	Ile	Ile	Ser	Thr	Asp	Glu	Asn	Gln	Val	Phe	Ala	Ala	Val	Gln	
				440					445					450		
gaa	tgg	aac	cag	aat	gac	acg	tac	aac	ctc	tac	atc	tca	gac	acg	cgt	1628
Glu	Trp	Asn	Gln	Asn	Asp	Thr	Tyr	Asn	Leu	Tyr	Ile	Ser	Asp	Thr	Arg	
			455					460					465			
ggg	att	tac	ttc	act	ctg	gcc	atg	gag	aac	atc	aag	agc	agc	aga	ggt	1676
Gly	Ile	Tyr	Phe	Thr	Leu	Ala	Met	Glu	Asn	Ile	Lys	Ser	Ser	Arg	Gly	
		470					475					480				
cta	atg	ggg	aac	atc	att	att	gaa	ttg	tat	gag	gta	gca	ggt	atc	aaa	1724
Leu	Met	Gly	Asn	Ile	Ile	Ile	Glu	Leu	Tyr	Glu	Val	Ala	Gly	Ile	Lys	
	485					490					495					
ggg	ata	ttt	ctg	gca	aac	aag	aag	gtg	gac	gac	cag	gtg	aag	aca	tac	1772
Gly	Ile	Phe	Leu	Ala	Asn	Lys	Lys	Val	Asp	Asp	Gln	Val	Lys	Thr	Tyr	
500					505					510					515	
atc	act	tac	aac	aaa	ggc	agg	gat	tgg	cgc	ctg	ctg	caa	gct	ccg	gat	1820
Ile	Thr	Tyr	Asn	Lys	Gly	Arg	Asp	Trp	Arg	Leu	Leu	Gln	Ala	Pro	Asp	
				520					525					530		
gtg	gac	ctg	aga	gga	agc	cca	gtg	cac	tgc	ctg	ctg	ccc	ttc	tgt	tcc	1868
Val	Asp	Leu	Arg	Gly	Ser	Pro	Val	His	Cys	Leu	Leu	Pro	Phe	Cys	Ser	
			535					540					545			
tta	cat	ctg	cac	ctg	caa	ctc	tct	gaa	aat	cca	tat	tcc	tca	gga	aga	1916
Leu	His	Leu	His	Leu	Gln	Leu	Ser	Glu	Asn	Pro	Tyr	Ser	Ser	Gly	Arg	
		550					555					560				
atc	tct	agc	aag	gag	aca	gcc	cca	gga	ctt	gtg	gtg	gct	aca	ggc	aac	1964
Ile	Ser	Ser	Lys	Glu	Thr	Ala	Pro	Gly	Leu	Val	Val	Ala	Thr	Gly	Asn	
	565					570					575					
att	ggc	ccg	gag	ctc	tca	tat	act	gat	att	ggt	gtg	ttc	atc	tcc	tcc	2012
Ile	Gly	Pro	Glu	Leu	Ser	Tyr	Thr	Asp	Ile	Gly	Val	Phe	Ile	Ser	Ser	
580					585					590					595	
gat	ggg	ggc	aac	aca	tgg	aga	cag	atc	ttt	gat	gaa	gag	tac	aat	gtc	2060
Asp	Gly	Gly	Asn	Thr	Trp	Arg	Gln	Ile	Phe	Asp	Glu	Glu	Tyr	Asn	Val	
				600					605					610		
tgg	ttc	cta	gac	tgg	ggt	ggt	gcc	ctc	gtg	gcc	atg	aaa	cac	aca	cct	2108
Trp	Phe	Leu	Asp	Trp	Gly	Gly	Ala	Leu	Val	Ala	Met	Lys	His	Thr	Pro	
			615					620					625			
ctg	cca	gtc	agg	cat	ttg	tgg	gtg	agt	ttt	gat	gag	ggc	cac	tct	tgg	2156
Leu	Pro	Val	Arg	His	Leu	Trp	Val	Ser	Phe	Asp	Glu	Gly	His	Ser	Trp	
		630					635					640				
gac	aag	tat	ggt	ttc	act	tcg	gtt	cct	ctc	ttt	gtt	gac	ggg	gct	ctg	2204
Asp	Lys	Tyr	Gly	Phe	Thr	Ser	Val	Pro	Leu	Phe	Val	Asp	Gly	Ala	Leu	
	645					650					655					
gtg	gag	gca	gga	atg	gag	acc	cac	atc	atg	aca	gtt	ttt	ggc	cac	ttc	2252
Val	Glu	Ala	Gly	Met	Glu	Thr	His	Ile	Met	Thr	Val	Phe	Gly	His	Phe	
660					665					670					675	
agc	ctc	cgc	tcc	gaa	tgg	caa	ttg	gtg	aaa	gtg	gac	tac	aaa	tct	atc	2300
Ser	Leu	Arg	Ser	Glu	Trp	Gln	Leu	Val	Lys	Val	Asp	Tyr	Lys	Ser	Ile	
				680					685					690		
ttc	agc	cgg	cat	tgc	acc	aag	gag	gac	tat	cag	acc	tgg	cac	ctg	ctc	2348
Phe	Ser	Arg	His	Cys	Thr	Lys	Glu	Asp	Tyr	Gln	Thr	Trp	His	Leu	Leu	
			695					700					705			
aat	cag	gga	gag	cct	tgt	gtc	atg	gga	gaa	agg	aaa	ata	ttc	aag	aaa	2396
Asn	Gln	Gly	Glu	Pro	Cys	Val	Met	Gly	Glu	Arg	Lys	Ile	Phe	Lys	Lys	
		710					715					720				
cgt	aag	cca	gga	gct	cag	tgt	gcc	ctg	ggc	cga	gac	cac	tca	gga	tca	2444
Arg	Lys	Pro	Gly	Ala	Gln	Cys	Ala	Leu	Gly	Arg	Asp	His	Ser	Gly	Ser	
	725					730					735					

## 960296.99080 - SEQ ID LISTING.txt

gtg gtc tca gaa ccc tgt gtc tgt gcc aat tgg gac ttc gag tgt gac Val Val Ser Glu Pro Cys Val Cys Ala Asn Trp Asp Phe Glu Cys Asp 740 745 750 755	2492
tat ggg tat gag aga cat ggg gag agc cag tgt gtc cca gct ttc tgg Tyr Gly Tyr Glu Arg His Gly Glu Ser Gln Cys Val Pro Ala Phe Trp 760 765 770	2540
tac aat cca gca tcc cca tca aag gac tgc agc ctt ggt caa agc tac Tyr Asn Pro Ala Ser Pro Ser Lys Asp Cys Ser Leu Gly Gln Ser Tyr 775 780 785	2588
ctt aac agc act ggg tat cgg cgg att gtg tcc aac aac tgc aca gat Leu Asn Ser Thr Gly Tyr Arg Arg Ile Val Ser Asn Asn Cys Thr Asp 790 795 800	2636
ggg cta agg gag aag tac acc gcc aag gcc cag atg tgc cct gga aaa Gly Leu Arg Glu Lys Tyr Thr Ala Lys Ala Gln Met Cys Pro Gly Lys 805 810 815	2684
gcc cct cgg ggc ctc cat gtg gtg acg acc gat ggg cgg ctg gtg gca Ala Pro Arg Gly Leu His Val Val Thr Thr Asp Gly Arg Leu Val Ala 820 825 830 835	2732
gag cag ggg cac aat gca act ttc atc atc ctc atg gag gag ggt gat Glu Gln Gly His Asn Ala Thr Phe Ile Ile Leu Met Glu Glu Gly Asp 840 845 850	2780
cta caa agg aca aac atc cag ctt gac ttt ggg gat ggg att gct gtg Leu Gln Arg Thr Asn Ile Gln Leu Asp Phe Gly Asp Gly Ile Ala Val 855 860 865	2828
tcc tac gca aac ttc agc ccc atc gag gac ggc atc aag cac gtg tat Ser Tyr Ala Asn Phe Ser Pro Ile Glu Asp Gly Ile Lys His Val Tyr 870 875 880	2876
aag agt gcg ggg atc ttc cag gtg aca gcc tat gca gag aac aac ctt Lys Ser Ala Gly Ile Phe Gln Val Thr Ala Tyr Ala Glu Asn Asn Leu 885 890 895	2924
ggc tca gac aca gct gtc ctc ttc ctg cat gtg gtt tgt cct gtg gag Gly Ser Asp Thr Ala Val Leu Phe Leu His Val Val Cys Pro Val Glu 900 905 910 915	2972
cat gtt cat ctc cga gtt cca ttt gtt gcc ata aga aat aag gag gtc His Val His Leu Arg Val Pro Phe Val Ala Ile Arg Asn Lys Glu Val 920 925 930	3020
aac atc agt gca gtc gtg tgg ccc agt caa ctg ggg acc ctt acc tat Asn Ile Ser Ala Val Val Trp Pro Ser Gln Leu Gly Thr Leu Thr Tyr 935 940 945	3068
ttc tgg tgg ttc ggc aat agc aca aag cct ctc atc act ttg gac agc Phe Trp Trp Phe Gly Asn Ser Thr Lys Pro Leu Ile Thr Leu Asp Ser 950 955 960	3116
agc att tcc ttc aca ttc ctt gca gaa gga acc gac acc atc aca gtc Ser Ile Ser Phe Thr Phe Leu Ala Glu Gly Thr Asp Thr Ile Thr Val 965 970 975	3164
cag gtg gct gct ggg aat gcc ctc atc cag gac aca aaa gag att gca Gln Val Ala Ala Gly Asn Ala Leu Ile Gln Asp Thr Lys Glu Ile Ala 980 985 990 995	3212
gtt cat gaa tat ttc cag tcc cag ctt tta tca ttc tct cct aat Val His Glu Tyr Phe Gln Ser Gln Leu Leu Ser Phe Ser Pro Asn 1000 1005 1010	3257
ctg gat tac cac aat cct gac att cct gag tgg aga aaa gat att Leu Asp Tyr His Asn Pro Asp Ile Pro Glu Trp Arg Lys Asp Ile 1015 1020 1025	3302
ggc aat gtc atc aag cga gct ctg gtt aaa gta acc agt gtc cca Gly Asn Val Ile Lys Arg Ala Leu Val Lys Val Thr Ser Val Pro 1030 1035 1040 1045 1050	3347

1030	1035	1040	
gag gac cag atc ctc att gcc gtg ttt cct ggt ctc ccc act tca Glu Asp Gln Ile Leu Ile Ala Val Phe Pro Gly Leu Pro Thr Ser 1045 1050 1055			3392
gca gag ctt ttc att ctt cca ccc aag aac ctg aca gag agg agg Ala Glu Leu Phe Ile Leu Pro Pro Lys Asn Leu Thr Glu Arg Arg 1060 1065 1070			3437
aaa ggc aat gaa ggg gac ctg gaa caa att gta gaa aca ctg ttt Lys Gly Asn Glu Gly Asp Leu Glu Gln Ile Val Glu Thr Leu Phe 1075 1080 1085			3482
aat gct ctc aac caa aat ttg gtc cag ttt gag ctg aag ccg ggg Asn Ala Leu Asn Gln Asn Leu Val Gln Phe Glu Leu Lys Pro Gly 1090 1095 1100			3527
gta caa gtc att gtg tat gtc aca cag ctg acg tta gct cca ttg Val Gln Val Ile Val Tyr Val Thr Gln Leu Thr Leu Ala Pro Leu 1105 1110 1115			3572
gtg gac tcc agt gct ggg cac agc agc tca gcc atg ctt atg cta Val Asp Ser Ser Ala Gly His Ser Ser Ser Ala Met Leu Met Leu 1120 1125 1130			3617
tta tca gtg gta ttt gtt ggc ctg gct gtg ttt ttg atc tac aag Leu Ser Val Val Phe Val Gly Leu Ala Val Phe Leu Ile Tyr Lys 1135 1140 1145			3662
ttt aaa agg aaa atc cct tgg att aac atc tat gct caa gtc caa Phe Lys Arg Lys Ile Pro Trp Ile Asn Ile Tyr Ala Gln Val Gln 1150 1155 1160			3707
cac gac aag gag cag gag atg att ggg tca gtg agc caa agt gaa His Asp Lys Glu Gln Glu Met Ile Gly Ser Val Ser Gln Ser Glu 1165 1170 1175			3752
aac gcc ccc aaa atc aca ctc agt gac ttt acg gag cct gag gag Asn Ala Pro Lys Ile Thr Leu Ser Asp Phe Thr Glu Pro Glu Glu 1180 1185 1190			3797
ctg ctg gac aaa gag ctg gac acg cgg gtc ata gga ggc att gcc Leu Leu Asp Lys Glu Leu Asp Thr Arg Val Ile Gly Gly Ile Ala 1195 1200 1205			3842
act att gca aac agc gaa agc aca aag gag atc ccc aac tgc act Thr Ile Ala Asn Ser Glu Ser Thr Lys Glu Ile Pro Asn Cys Thr 1210 1215 1220			3887
agt gtt taataaccagc aagccacgtg gtcaaccacc tttctgactt tttatttttg Ser Val			3943
atgattacta ttactattat tatggaaaaa ttaaaatgtc ttttttacct tttgtttacc			4003
aagggccct tcataaatag caggcaaagt cctagctttg ggagaaaagg gcattccttag			4063
ctgattgaaa tgagacaaag ggaataaatg gctgtatttg tgctaagagc aaaggatgca			4123
tcttcccaca gcctcctcgc tttactctgc cattggtagc ttaaagactt tctttttcct			4183
tgtggtctcc cttttttcaa aattgaagtt ggggttggtc tttgtgaacc tctcatcccc			4243
acagcagaat caccaacact ctccgcttcc cccagcacac acacatacaa cacagatcat			4303
ttcccagtta gatccgcagg aagtaggttg gtgggggttg atgtagctgc agaaagcatg			4363
cacaactttg tgaaagaggc cctgccttgt gcatgtccat agtgaggcta cagatggctt			4423
attgtatata attacaatgt aaatagcttt ttatttccta agaaataatt taatgtttag			4483
taaaaaagaa aacagaaaaa agaaagatgc gtgtgttggc ttacgcactg gccctcagag			4543
ctgaccaacc cgccaggcct gctcaatgca ttgggttttg atgctctcct gttgtctgtc			4603

## 960296.99080 - SEQ ID LISTING.txt

```

acacttaact cttgcatctc cttgtccatg ccatagctgg tttctactta tgtatataaa 4663
gggggggtggg gggaggggct tctctggggc aattgataaa ggaaggactc tagtgacatc 4723
atagaacatg gcagtcgttt ttgttccaag aatgatatga aaggtgaaga agaggccac 4783
tagaggcttc atactgagac ccagatgggg gaaaacagct tcctctctaa aaggaaaaac 4843
ttgatattta tcagtctgag aaaatatttt tttctaaaga aggcagtcag tggatcttaa 4903
aatgacaatc tgtttttaaa ttggattcta tgaaaatgca taatgcttat ggtgaattct 4963
caggctattc tgagctcaga aaagtccctt gggcactagg taaagcccag tgaatgtctc 5023
ttggcatggg aggagttaaa gaggttggaa ggaagaggc atttgtggaa ttatgagttc 5083
atgcaaaaact ctccaggcca agtaggggtc tagcctttta tgatattagt caaaggcaat 5143
tttagcaaag ctgtgctatt tgcttgtcag atgtacacaa cttccttaaa gtcaaagtgc 5203
tgccttcagt tcccttaagg tagttcttgc ctctgggggtg agtggcctttc aaagcctttt 5263
agctttttcca gcacctcagc cccttcacac atttacacat accaattttt ttcaataggg 5323
tcacgttaag ccatgctgta agcattgttt ttattttcag gcttagcctg agcacactta 5383
tttttgaaaa tgatataatg tatatatatg ggaggaaagg ccacattttg tacctgttaa 5443
tttttggtgg atgttgttcc cattcttctt tgtgagacag agagaatgtg atatagagaa 5503
atctggctgg ctacagtgtg gatcagtatt aggaatattt ctaaagatcc tgcttttttg 5563
tttcaagggt taaatggggc agacaattgc aatacttgta ctaaacactg gaatacaaat 5623
gcatgactca tatctatata tacagtatat gtacatatac tgttcttggt tttattgttc 5683
cacttgaata tttctactgt aaaaaaaga cagtggtttt gaaattgttg aaaataaatg 5743
tatttttgta catc 5757

```

```

<210> 2
<211> 1222
<212> PRT
<213> Homo sapiens

```

```
<400> 2
```

```
Met Glu Ala Ala Arg Thr Glu Arg Pro Ala Gly Arg Pro Gly Ala Pro
1          5          10          15
```

```
Leu Val Arg Thr Gly Leu Leu Leu Leu Ser Thr Trp Val Leu Ala Gly
20          25          30
```

```
Ala Glu Ile Thr Trp Asp Ala Thr Gly Gly Pro Gly Arg Pro Ala Ala
35          40          45
```

```
Pro Ala Ser Arg Pro Pro Ala Leu Ser Pro Leu Ser Pro Arg Ala Val
50          55          60
```

```
Ala Ser Gln Trp Pro Glu Glu Leu Ala Ser Ala Arg Arg Ala Ala Val
65          70          75          80
```

```
Leu Gly Arg Arg Ala Gly Pro Glu Leu Leu Pro Gln Gln Gly Gly Gly
85          90          95
```

```
Arg Gly Gly Glu Met Gln Val Glu Ala Gly Gly Thr Ser Pro Ala Gly
100         105         110
```

Glu Arg Arg Gly Arg Gly Ile Pro Ala Pro Ala Lys Leu Gly Gly Ala  
 115 120 125  
 Arg Arg Ser Arg Arg Ala Gln Pro Pro Ile Thr Gln Glu Arg Gly Asp  
 130 135 140  
 Ala Trp Ala Thr Ala Pro Ala Asp Gly Ser Arg Gly Ser Arg Pro Leu  
 145 150 155 160  
 Ala Lys Gly Ser Arg Glu Glu Val Lys Ala Pro Arg Ala Gly Gly Ser  
 165 170 175  
 Ala Ala Glu Asp Leu Arg Leu Pro Ser Thr Ser Phe Ala Leu Thr Gly  
 180 185 190  
 Asp Ser Ala His Asn Gln Ala Met Val His Trp Ser Gly His Asn Ser  
 195 200 205  
 Ser Val Ile Leu Ile Leu Thr Lys Leu Tyr Asp Phe Asn Leu Gly Ser  
 210 215 220  
 Val Thr Glu Ser Ser Leu Trp Arg Ser Thr Asp Tyr Gly Thr Thr Tyr  
 225 230 235 240  
 Glu Lys Leu Asn Asp Lys Val Gly Leu Lys Thr Val Leu Ser Tyr Leu  
 245 250 255  
 Tyr Val Asn Pro Thr Asn Lys Arg Lys Ile Met Leu Leu Ser Asp Pro  
 260 265 270  
 Glu Met Glu Ser Ser Ile Leu Ile Ser Ser Asp Glu Gly Ala Thr Tyr  
 275 280 285  
 Gln Lys Tyr Arg Leu Thr Phe Tyr Ile Gln Ser Leu Leu Phe His Pro  
 290 295 300  
 Lys Gln Glu Asp Trp Val Leu Ala Tyr Ser Leu Asp Gln Lys Leu Tyr  
 305 310 315 320  
 Ser Ser Met Asp Phe Gly Arg Arg Trp Gln Leu Met His Glu Arg Ile  
 325 330 335  
 Thr Pro Asn Arg Phe Tyr Trp Ser Val Ala Gly Leu Asp Lys Glu Ala  
 340 345 350  
 Asp Leu Val His Met Glu Val Arg Thr Thr Asp Gly Tyr Ala His Tyr  
 355 360 365  
 Leu Thr Cys Arg Ile Gln Glu Cys Ala Glu Thr Thr Arg Ser Gly Pro  
 370 375 380  
 Phe Ala Arg Ser Ile Asp Ile Ser Ser Leu Val Val Gln Asp Glu Tyr  
 385 390 395 400  
 Ile Phe Ile Gln Val Thr Thr Ser Gly Arg Ala Ser Tyr Tyr Val Ser

405

410

415

Tyr Arg Arg Glu Ala Phe Ala Gln Ile Lys Leu Pro Lys Tyr Ser Leu  
420 425 430

Pro Lys Asp Met His Ile Ile Ser Thr Asp Glu Asn Gln Val Phe Ala  
435 440 445

Ala Val Gln Glu Trp Asn Gln Asn Asp Thr Tyr Asn Leu Tyr Ile Ser  
450 455 460

Asp Thr Arg Gly Ile Tyr Phe Thr Leu Ala Met Glu Asn Ile Lys Ser  
465 470 475 480

Ser Arg Gly Leu Met Gly Asn Ile Ile Ile Glu Leu Tyr Glu Val Ala  
485 490 495

Gly Ile Lys Gly Ile Phe Leu Ala Asn Lys Lys Val Asp Asp Gln Val  
500 505 510

Lys Thr Tyr Ile Thr Tyr Asn Lys Gly Arg Asp Trp Arg Leu Leu Gln  
515 520 525

Ala Pro Asp Val Asp Leu Arg Gly Ser Pro Val His Cys Leu Leu Pro  
530 535 540

Phe Cys Ser Leu His Leu His Leu Gln Leu Ser Glu Asn Pro Tyr Ser  
545 550 555 560

Ser Gly Arg Ile Ser Ser Lys Glu Thr Ala Pro Gly Leu Val Val Ala  
565 570 575

Thr Gly Asn Ile Gly Pro Glu Leu Ser Tyr Thr Asp Ile Gly Val Phe  
580 585 590

Ile Ser Ser Asp Gly Gly Asn Thr Trp Arg Gln Ile Phe Asp Glu Glu  
595 600 605

Tyr Asn Val Trp Phe Leu Asp Trp Gly Gly Ala Leu Val Ala Met Lys  
610 615 620

His Thr Pro Leu Pro Val Arg His Leu Trp Val Ser Phe Asp Glu Gly  
625 630 635 640

His Ser Trp Asp Lys Tyr Gly Phe Thr Ser Val Pro Leu Phe Val Asp  
645 650 655

Gly Ala Leu Val Glu Ala Gly Met Glu Thr His Ile Met Thr Val Phe  
660 665 670

Gly His Phe Ser Leu Arg Ser Glu Trp Gln Leu Val Lys Val Asp Tyr  
675 680 685

Lys Ser Ile Phe Ser Arg His Cys Thr Lys Glu Asp Tyr Gln Thr Trp  
690 695 700



His Leu Leu Asn Gln Gly Glu Pro Cys Val Met Gly Glu Arg Lys Ile  
 705 710 715 720

Phe Lys Lys Arg Lys Pro Gly Ala Gln Cys Ala Leu Gly Arg Asp His  
 725 730 735

Ser Gly Ser Val Val Ser Glu Pro Cys Val Cys Ala Asn Trp Asp Phe  
 740 745 750

Glu Cys Asp Tyr Gly Tyr Glu Arg His Gly Glu Ser Gln Cys Val Pro  
 755 760 765

Ala Phe Trp Tyr Asn Pro Ala Ser Pro Ser Lys Asp Cys Ser Leu Gly  
 770 775 780

Gln Ser Tyr Leu Asn Ser Thr Gly Tyr Arg Arg Ile Val Ser Asn Asn  
 785 790 795 800

Cys Thr Asp Gly Leu Arg Glu Lys Tyr Thr Ala Lys Ala Gln Met Cys  
 805 810 815

Pro Gly Lys Ala Pro Arg Gly Leu His Val Val Thr Thr Asp Gly Arg  
 820 825 830

Leu Val Ala Glu Gln Gly His Asn Ala Thr Phe Ile Ile Leu Met Glu  
 835 840 845

Glu Gly Asp Leu Gln Arg Thr Asn Ile Gln Leu Asp Phe Gly Asp Gly  
 850 855 860

Ile Ala Val Ser Tyr Ala Asn Phe Ser Pro Ile Glu Asp Gly Ile Lys  
 865 870 875 880

His Val Tyr Lys Ser Ala Gly Ile Phe Gln Val Thr Ala Tyr Ala Glu  
 885 890 895

Asn Asn Leu Gly Ser Asp Thr Ala Val Leu Phe Leu His Val Val Cys  
 900 905 910

Pro Val Glu His Val His Leu Arg Val Pro Phe Val Ala Ile Arg Asn  
 915 920 925

Lys Glu Val Asn Ile Ser Ala Val Val Trp Pro Ser Gln Leu Gly Thr  
 930 935 940

Leu Thr Tyr Phe Trp Trp Phe Gly Asn Ser Thr Lys Pro Leu Ile Thr  
 945 950 955 960

Leu Asp Ser Ser Ile Ser Phe Thr Phe Leu Ala Glu Gly Thr Asp Thr  
 965 970 975

Ile Thr Val Gln Val Ala Ala Gly Asn Ala Leu Ile Gln Asp Thr Lys  
 980 985 990

Glu Ile Ala Val His Glu Tyr Phe Gln Ser Gln Leu Leu Ser Phe Ser  
 995 1000 1005

Pro Asn Leu Asp Tyr His Asn Pro Asp Ile Pro Glu Trp Arg Lys  
 1010 1015 1020  
 Asp Ile Gly Asn Val Ile Lys Arg Ala Leu Val Lys Val Thr Ser  
 1025 1030 1035  
 Val Pro Glu Asp Gln Ile Leu Ile Ala Val Phe Pro Gly Leu Pro  
 1040 1045 1050  
 Thr Ser Ala Glu Leu Phe Ile Leu Pro Pro Lys Asn Leu Thr Glu  
 1055 1060 1065  
 Arg Arg Lys Gly Asn Glu Gly Asp Leu Glu Gln Ile Val Glu Thr  
 1070 1075 1080  
 Leu Phe Asn Ala Leu Asn Gln Asn Leu Val Gln Phe Glu Leu Lys  
 1085 1090 1095  
 Pro Gly Val Gln Val Ile Val Tyr Val Thr Gln Leu Thr Leu Ala  
 1100 1105 1110  
 Pro Leu Val Asp Ser Ser Ala Gly His Ser Ser Ser Ala Met Leu  
 1115 1120 1125  
 Met Leu Leu Ser Val Val Phe Val Gly Leu Ala Val Phe Leu Ile  
 1130 1135 1140  
 Tyr Lys Phe Lys Arg Lys Ile Pro Trp Ile Asn Ile Tyr Ala Gln  
 1145 1150 1155  
 Val Gln His Asp Lys Glu Gln Glu Met Ile Gly Ser Val Ser Gln  
 1160 1165 1170  
 Ser Glu Asn Ala Pro Lys Ile Thr Leu Ser Asp Phe Thr Glu Pro  
 1175 1180 1185  
 Glu Glu Leu Leu Asp Lys Glu Leu Asp Thr Arg Val Ile Gly Gly  
 1190 1195 1200  
 Ile Ala Thr Ile Ala Asn Ser Glu Ser Thr Lys Glu Ile Pro Asn  
 1205 1210 1215  
 Cys Thr Ser Val  
 1220

<210> 3  
 <211> 7272  
 <212> DNA  
 <213> Homo sapiens

<220>  
 <221> CDS  
 <222> (9)..(3512)

<400> 3  
 ctcccgcg atg gga aaa gtt ggc gcc ggc ggc ggc tcc caa gcc cgg ctg  
 Met Gly Lys Val Gly Ala Gly Gly Gly Ser Gln Ala Arg Leu  
 1 5 10

## 960296.99080 - SEQ ID LISTING.txt

agc Ser 15	gcg Ala	ctc Leu	ctc Leu	gcc Ala	ggc Gly 20	gcg Ala	ggg Gly	ctc Leu	ttg Leu	atc Ile 25	ctc Leu	tgc Cys	gcc Ala	ccg Pro	ggc Gly 30	98
gtc Val	tgc Cys	ggc Gly	ggc Gly	ggc Gly 35	tcc Ser	tgc Cys	tgc Cys	ccc Pro	tcg Ser 40	ccg Pro	cac His	ccc Pro	agc Ser	tcc Ser 45	gct Ala	146
cca Pro	cgc Arg	tcg Ser	gcc Ala 50	tcg Ser	acc Thr	cct Pro	agg Arg	ggc Gly 55	ttt Phe	tcc Ser	cac His	cag Gln	ggg Gly 60	cgg Arg	cca Pro	194
ggc Gly	agg Arg	gct Ala 65	cct Pro	gcc Ala	acg Thr	ccc Pro	ctg Leu 70	ccc Pro	ctc Leu	gta Val	gtg Val	cgt Arg 75	ccc Pro	ctg Leu	ttc Phe	242
tca Ser	gtg Val 80	gcc Ala	ccc Pro	ggg Gly	gac Asp	cga Arg 85	gcg Ala	cta Leu	tcc Ser	ctg Leu	gag Glu 90	cgg Arg	gct Ala	cgg Arg	ggc Gly	290
act Thr 95	ggg Gly	gca Ala	tcc Ser	atg Met	gcg Ala 100	gtt Val	gct Ala	gca Ala	cgc Arg	tcc Ser 105	ggc Gly	cgg Arg	agg Arg	aga Arg	cgg Arg 110	338
agc Ser	gga Gly	gcg Ala	gat Asp	cag Gln 115	gag Glu	aag Lys	gca Ala	gaa Glu	cgg Arg 120	gga Gly	gag Glu	ggc Gly	gcg Ala	agt Ser 125	cgg Arg	386
agc Ser	ccc Pro	cgg Arg	gga Gly 130	gtg Val	cta Leu	aga Arg	gat Asp	gga Gly 135	ggg Gly	cag Gln	cag Gln	gag Glu	cct Pro 140	ggg Gly	act Thr	434
cgg Arg	gag Glu	cgg Arg 145	gac Asp	ccg Pro	gac Asp	aaa Lys	gcc Ala 150	acc Thr	cgc Arg	ttc Phe	cgg Arg	atg Met 155	gag Glu	gag Glu	ctg Leu	482
aga Arg 160	ctg Leu	acc Thr	agc Ser	acc Thr	acg Thr	ttt Phe 165	gcg Ala	ctg Leu	acg Thr	gga Gly	gac Asp 170	tca Ser	gca Ala	cac His	aac Asn	530
caa Gln 175	gcc Ala	atg Met	gtc Val	cac His	tgg Trp 180	tct Ser	ggc Gly	cac His	aac Asn	agc Ser 185	agc Ser	gtg Val	att Ile	ctc Leu	att Ile 190	578
ttg Leu	aca Thr	aag Lys	ctc Leu	tat Tyr 195	gac Asp	tat Tyr	aac Asn	ctg Leu	ggg Gly 200	agc Ser	atc Ile	aca Thr	gag Glu	agc Ser 205	tcg Ser	626
ctt Leu	tgg Trp	agg Arg	tca Ser 210	acc Thr	gat Asp	tat Tyr	gga Gly	aca Thr 215	acc Thr	tat Tyr	gag Glu	aag Lys	ctg Leu 220	aat Asn	gat Asp	674
aaa Lys	gtt Val	ggt Gly 225	ttg Leu	aag Lys	acc Thr	att Ile	ttg Leu 230	ggc Gly	tat Tyr	ctc Leu	tat Tyr	gtg Val 235	tgt Cys	cct Pro	acc Thr	722
aac Asn 240	aag Lys	cgt Arg	aag Lys	ata Ile	atg Met	tta Leu 245	ctc Leu	aca Thr	gac Asp	ccg Pro	gag Glu 250	att Ile	gag Glu	agc Ser	agt Ser	770
tta Leu 255	ttg Leu	atc Ile	agc Ser	tca Ser	gat Asp 260	gaa Glu	ggg Gly	gca Ala	act Thr	tat Tyr 265	caa Gln	aag Lys	tac Tyr	cgg Arg	ctg Leu 270	818
aac Asn	ttc Phe	tac Tyr	att Ile	caa Gln 275	agc Ser	ttg Leu	ctt Leu	ttt Phe	cac His 280	ccc Pro	aaa Lys	caa Gln	gaa Glu	gac Asp 285	tgg Trp	866
att Ile	ctg Leu	gca Ala	tac Tyr 290	agt Ser	caa Gln	gac Asp	caa Gln	aag Lys 295	tta Leu	tac Tyr	agc Ser	tct Ser	gct Ala 300	gaa Glu	ttt Phe	914
ggg Gly	aga Arg	aga Arg	tgg Trp	cag Gln	ctt Leu	atc Ile	caa Gln	gaa Glu	ggg Gly	gtt Val	gta Val	cca Pro	aac Asn	agg Arg	ttc Phe	962

305	310	315	
tac tgg tct gtg atg ggg tca aat aaa gaa cca gac ctt gtg cat ctt Tyr Trp Ser Val Met Gly Ser 325 Asn Lys Glu Pro Asp 330 Leu Val His Leu			1010
gag gcc aga act gtg gat ggt cat tca cat tat cta act tgc cga atg Glu Ala Arg Thr Val Asp 340 Gly His Ser His Tyr 345 Leu Thr Cys Arg Met 350			1058
cag aac tgt aca gag gcc aac agg aat cag cct ttt cca ggc tac att Gln Asn Cys Thr Glu 355 Ala Asn Arg Asn Gln 360 Pro Phe Pro Gly Tyr Ile 365			1106
gac cca gac tct ttg att gtt cag gat cat tat gtg ttt gtt cag ctg Asp Pro Asp Ser 370 Leu Ile Val Gln Asp 375 His Tyr Val Phe Val 380 Gln Leu			1154
aca tca gga ggg cgg cca cat tac tac gtg tcc tac cga agg aat gca Thr Ser Gly 385 Arg Pro His Tyr 390 Tyr Val Ser Tyr Arg 395 Arg Asn Ala			1202
ttt gcc caa atg aag ctt ccg aaa tat gct ttg ccc aag gac atg cat Phe Ala 400 Gln Met Lys Leu Pro 405 Lys Tyr Ala Leu Pro 410 Lys Asp Met His			1250
gtt atc agc acc gat gag aat cag gtg ttc gca gcg gtc caa gaa tgg Val Ile Ser Thr Asp Glu 420 Asn Gln Val Phe Ala 425 Ala Val Gln Glu Trp 430			1298
aac cag aat gac acg tac aac ctc tac atc tca gac aca cgt ggt gtc Asn Gln Asn Asp Thr 435 Asn Leu Tyr Ile 440 Ser Asp Thr Arg Gly 445 Val			1346
tac ttc acc ctg gcc ttg gag aat gtc cag agc agc aga ggc cct gag Tyr Phe Thr 450 Ala Leu Glu Asn Val 455 Gln Ser Ser Arg Gly 460 Pro Glu			1394
ggc aac atc atg atc gac ctc tat gag gta gca ggg ata aag gga atg Gly Asn Ile 465 Met Ile Asp Leu Tyr 470 Glu Val Ala Gly Ile 475 Lys Gly Met			1442
ttc ttg gct aac aag aag att gac aac caa gtg aag act ttc atc aca Phe Leu 480 Ala Asn Lys Lys Ile 485 Asp Asn Gln Val Lys 490 Thr Phe Ile Thr			1490
tat aac aaa ggc aga gac tgg cgt ttg ctg cag gcg ccg gac acg gat Tyr Asn Lys Gly Arg Asp 500 Trp Arg Leu Leu Gln Ala Pro Asp Thr Asp 510			1538
cta agg ggg gac ccc gtg cac tgc ttg ctg ccc tat tgc tca cta cac Leu Arg Gly Asp Pro 515 Val His Cys Leu Leu Pro Tyr Cys Ser Leu His 525			1586
ctt cac ctg aag gtc tct gag aat ccc tac aca tca ggg atc att gcc Leu His Leu 530 Val Ser Glu Asn Pro 535 Tyr Thr Ser Gly Ile 540 Ile Ala			1634
agc aaa gac aca gct cca agc atc ata gtg gca tca ggt aat ata ggt Ser Lys Asp 545 Thr Ala Pro Ser Ile 550 Val Ala Ser Gly 555 Asn Ile Gly			1682
tct gaa ttg tca gac act gac atc agc atg ttt gtc tct tca gat gca Ser Glu Leu Ser Asp Thr 565 Ile Ser Met Phe Val 570 Ser Ser Asp Ala			1730
ggg aac acc tgg aga cag atc ttt gaa gaa gag cac agt gtt ttg tac Gly Asn Thr Trp Arg Gln 580 Ile Phe Glu Glu Glu His Ser Val Leu Tyr 590			1778
ctg gat caa ggt gga gtc ctg gtt gct atg aaa cac aca tct ctc cca Leu Asp Gln Gly 595 Val Leu Val Ala Met 600 Lys His Thr Ser Leu Pro 605			1826
att cga cat ctt tgg ttg agt ttt gat gaa ggg aga tct tgg agc aaa			1874

960296.99080 - SEQ ID LISTING.txt

Ile	Arg	His	Leu	Trp	Leu	Ser	Phe	Asp	Glu	Gly	Arg	Ser	Trp	Ser	Lys	
			610					615					620			
tac	agt	ttc	aca	tct	att	cca	ctt	ttt	gtg	gat	ggg	gtt	ctg	ggt	gag	1922
Tyr	Ser	Phe	Thr	Ser	Ile	Pro	Leu	Phe	Val	Asp	Gly	Val	Leu	Gly	Glu	
		625					630					635				
cct	gga	gaa	gag	act	ctc	atc	atg	aca	gtg	ttt	gga	cac	ttc	agc	cac	1970
Pro	Gly	Glu	Glu	Thr	Leu	Ile	Met	Thr	Val	Phe	Gly	His	Phe	Ser	His	
	640					645					650					
cgc	tct	gaa	tgg	cag	ctg	gtc	aaa	gta	gat	tac	aag	tcc	att	ttt	gat	2018
Arg	Ser	Glu	Trp	Gln	Leu	Val	Lys	Val	Asp	Tyr	Lys	Ser	Ile	Phe	Asp	
655					660					665					670	
aga	cgg	tgt	gcc	gaa	gag	gac	tac	aga	cct	tgg	cag	ctg	cac	agc	cag	2066
Arg	Arg	Cys	Ala	Glu	Glu	Asp	Tyr	Arg	Pro	Trp	Gln	Leu	His	Ser	Gln	
			675						680				685			
ggg	gaa	gca	tgt	atc	atg	gga	gca	aaa	agg	ata	tat	aag	aag	cga	aaa	2114
Gly	Glu	Ala	Cys	Ile	Met	Gly	Ala	Lys	Arg	Ile	Tyr	Lys	Lys	Arg	Lys	
			690					695				700				
tca	gag	cgg	aag	tgt	atg	caa	gga	aaa	tat	gca	gga	gct	atg	gaa	tct	2162
Ser	Glu	Arg	Lys	Cys	Met	Gln	Gly	Lys	Tyr	Ala	Gly	Ala	Met	Glu	Ser	
		705					710					715				
gaa	ccc	tgt	gtc	tgc	act	gag	gct	gat	ttt	gat	tgc	gac	tat	ggt	tat	2210
Glu	Pro	Cys	Val	Cys	Thr	Glu	Ala	Asp	Phe	Asp	Cys	Asp	Tyr	Gly	Tyr	
	720					725					730					
gag	cga	cac	agc	aat	ggc	cag	tgc	ctg	ccg	gca	ttt	tgg	ttc	aat	cca	2258
Glu	Arg	His	Ser	Asn	Gly	Gln	Cys	Leu	Pro	Ala	Phe	Trp	Phe	Asn	Pro	
735					740					745					750	
tcc	tct	ctg	tca	aag	gat	tgc	agc	ttg	gga	cag	agt	tac	ctc	aat	agt	2306
Ser	Ser	Leu	Ser	Lys	Asp	Cys	Ser	Leu	Gly	Gln	Ser	Tyr	Leu	Asn	Ser	
				755					760					765		
act	ggg	tac	agg	aag	gtg	gtt	tcc	aat	aat	tgc	act	gat	ggc	gta	agg	2354
Thr	Gly	Tyr	Arg	Lys	Val	Val	Ser	Asn	Asn	Cys	Thr	Asp	Gly	Val	Arg	
			770					775					780			
gaa	cag	tac	act	gcc	aaa	ccg	cag	aag	tgc	cca	ggg	aaa	gcc	ccg	cgg	2402
Glu	Gln	Tyr	Thr	Ala	Lys	Pro	Gln	Lys	Cys	Pro	Gly	Lys	Ala	Pro	Arg	
		785					790					795				
ggg	ctg	cgg	ata	gtc	acg	gct	gat	gga	aag	ctg	aca	gcg	gaa	caa	gga	2450
Gly	Leu	Arg	Ile	Val	Thr	Ala	Asp	Gly	Lys	Leu	Thr	Ala	Glu	Gln	Gly	
	800					805					810					
cac	aac	gtc	act	ctc	atg	gtg	caa	tta	gaa	gag	ggt	gat	gtt	cag	cgg	2498
His	Asn	Val	Thr	Leu	Met	Val	Gln	Leu	Glu	Glu	Gly	Asp	Val	Gln	Arg	
815					820					825					830	
aca	ctc	atc	caa	gtg	gac	ttt	ggc	gat	ggt	atc	gcg	gtg	tct	tac	gtc	2546
Thr	Leu	Ile	Gln	Val	Asp	Phe	Gly	Asp	Gly	Ile	Ala	Val	Ser	Tyr	Val	
				835					840					845		
aat	ctc	agc	tcc	atg	gaa	gat	ggg	atc	aaa	cac	gtc	tat	cag	aac	gtg	2594
Asn	Leu	Ser	Ser	Met	Glu	Asp	Gly	Ile	Lys	His	Val	Tyr	Gln	Asn	Val	
			850					855					860			
ggc	att	ttc	cgt	gtg	acc	gtg	cag	gtg	gac	aac	agt	ctg	ggt	tct	gac	2642
Gly	Ile	Phe	Arg	Val	Thr	Val	Gln	Val	Asp	Asn	Ser	Leu	Gly	Ser	Asp	
		865					870					875				
agc	gcc	gtc	ctg	tac	tta	cat	gta	act	tgt	ccc	ttg	gag	cac	gtg	cac	2690
Ser	Ala	Val	Leu	Tyr	Leu	His	Val	Thr	Cys	Pro	Leu	Glu	His	Val	His	
	880					885					890					
ctg	tct	ctt	ccc	ttt	gtc	acc	aca	aag	aac	aaa	gag	gtc	aat	gcg	acg	2738
Leu	Ser	Leu	Pro	Phe	Val	Thr	Thr	Lys	Asn	Lys	Glu	Val	Asn	Ala	Thr	
895					900					905					910	

## 960296.99080 - SEQ ID LISTING.txt

gca gtg ctg tgg ccc agc caa gtg ggc acc ctc act tac gtg tgg tgg Ala Val Leu Trp Pro Ser Gln Val Gly Thr Leu Thr Tyr Val Trp Trp 915 920 925	2786
tac gga aac aac acg gag cct ttg atc acc ttg gag gga agc ata tcc Tyr Gly Asn Asn Thr Glu Pro Leu Ile Thr Leu Glu Gly Ser Ile Ser 930 935 940	2834
ttc aga ttt act tca gaa gga atg aat acc atc aca gtg cag gtc tca Phe Arg Phe Thr Ser Glu Gly Met Asn Thr Ile Thr Val Gln Val Ser 945 950 955	2882
gct ggg aat gcc atc cta caa gac aca aag acc atc gca gta tat gag Ala Gly Asn Ala Ile Leu Gln Asp Thr Lys Thr Ile Ala Val Tyr Glu 960 965 970	2930
gaa ttc cgg tct ctt cgc ttg tcc ttt tct cca aac ctg gat gac tac Glu Phe Arg Ser Leu Arg Leu Ser Phe Ser Pro Asn Leu Asp Asp Tyr 975 980 985 990	2978
aac ccg gac atc cct gag tgg agg agg gac atc ggt cga gtc atc aaa Asn Pro Asp Ile Pro Glu Trp Arg Arg Asp Ile Gly Arg Val Ile Lys 995 1000 1005	3026
aaa tcc ctg gtg gaa gcc aca ggg gtt cca ggc cag cac atc ctg Lys Ser Leu Val Glu Ala Thr Gly Val Pro Gly Gln His Ile Leu 1010 1015 1020	3071
gtg gcg gtg ctc cct ggc tta ccc acc act gct gaa ctc ttt gtc Val Ala Val Leu Pro Gly Leu Pro Thr Thr Ala Glu Leu Phe Val 1025 1030 1035	3116
cta ccc tat cag gat cca gct gga gaa aac aaa agg tca act gat Leu Pro Tyr Gln Asp Pro Ala Gly Glu Asn Lys Arg Ser Thr Asp 1040 1045 1050	3161
gac ctg gag cag ata tca gaa ttg ctg atc cac acg ctc aac caa Asp Leu Glu Gln Ile Ser Glu Leu Leu Ile His Thr Leu Asn Gln 1055 1060 1065	3206
aac tca gta cac ttc gag ctg aag cca gga gtc cga gtc ctt gtc Asn Ser Val His Phe Glu Leu Lys Pro Gly Val Arg Val Leu Val 1070 1075 1080	3251
cat gct gct cac tta aca gcg gcc ccc ctg gtg gac ctc act cca His Ala Ala His Leu Thr Ala Ala Pro Leu Val Asp Leu Thr Pro 1085 1090 1095	3296
acc cac agt gga tct gcc atg ctg atg ctg ctc tca gtg gtg ttt Thr His Ser Gly Ser Ala Met Leu Met Leu Leu Ser Val Val Phe 1100 1105 1110	3341
gtg ggg ctg gca gtg ttc gtc atc tac aag ttt aaa agg aga gta Val Gly Leu Ala Val Phe Val Ile Tyr Lys Phe Lys Arg Arg Val Val 1115 1120 1125	3386
gct tta ccc tcc cct ccc tcc cct tct act caa cct ggt gac tca Ala Leu Pro Ser Pro Pro Ser Pro Ser Thr Gln Pro Gly Asp Ser 1130 1135 1140	3431
tct ctc cga ttg caa aga gca aga cac gcc act ccg cct tca acg Ser Leu Arg Leu Gln Arg Ala Arg His Ala Thr Pro Pro Ser Thr 1145 1150 1155	3476
cca aag cgg gga tct gct ggg gca cag tat gca att taaggaaaac Pro Lys Arg Gly Ser Ala Gly Ala Gln Tyr Ala Ile 1160 1165	3522
ccccaaaggc tacaggcgac ctgctgatca ggaaagaatt tcgctcttgt caagtacatc	3582
atccttcatg accactaact ttgtgttttt tttctttcct ttgttgttct gtttcctatt	3642
ttgccaggaa gtatttccat agttgctgag aatcaaagca caaaagaaat ccctacctat	3702
gtaaatgttt gaatggagga cgccagtaaa aaaacaaaaa caaaaacaaa acaaaaacata	3762

## 960296.99080 - SEQ ID LISTING.txt

aaatataaac	aatcaaaatc	caaacaaaca	aacaaacact	cactgcatcg	ggacttttta	3822
attcttcaga	cacagacaac	aaggggtttt	agctttaagc	ctgtgcatgt	ggacaatact	3882
ctgagaacat	gtctggaggg	gcagtgtaca	ggtgctctat	tttaatggaa	aacactcccc	3942
tctccctctt	tcttcttctc	tctctttttt	ctgatcggtc	gtgtttgtag	aaaattcata	4002
acatatatag	gccaaggaaa	tctgcatgta	tttttgaaa	tattcttggc	tctagattta	4062
tcagctattt	tagcattaaa	ggctgatggg	tggattagct	accccagctc	ctttcataag	4122
acacaaagac	gtgcacagga	gtttgaaacc	ctgagctggt	tctctgttcc	actttccata	4182
ctgtcatttc	ccttctaagt	tagctttggt	agctctgttg	gtcagcagtg	gccacaaggc	4242
tgctttctgc	actctctgtg	gccacaggaa	caaagatgcg	agttgaagat	ccctttgtgc	4302
cggtagaata	aggaaggaag	ggaggcaggg	aggcaaagca	tgtcagaaac	ggaccttggg	4362
ttcctgttca	cctctttcca	ccatgattgc	ctccccctgc	agctttccct	actcctgccc	4422
caactgcagt	aggaaatgga	atcccattag	ttaccatttg	tcctgtcttc	acatttgttt	4482
gtcatccatg	tgtgaccatg	atctgttgat	atctttgaat	ctcttccctc	caaaccccaa	4542
gtaagttgtc	cttcaactgt	tctcagtttt	tcttcccaaa	catattgcta	gattctggac	4602
attaaccctg	acgtttccta	aatactggcc	tggcctgtgc	cgccccctgcc	cccactactc	4662
acaagtttct	gagccctttg	tcagttttgt	acattcccaa	gcatgccagc	ttctgtgccc	4722
atggaccttg	ctgcatcctg	cacagcaggg	ttcagtttca	tgtatctttg	tcttttcctc	4782
tagaacctgc	ctttttcaaa	tatccctgcc	ttttcccacc	tggaaacata	tactgtatgc	4842
gaaagagttg	atatatgcaa	agtaattcaa	acctggccat	gtactttgga	aaagaaagca	4902
tagagatgaa	ttgtggtggt	ctcacacctt	aacgaaaatc	tcgtgcgatc	tgattccaga	4962
agattcttgt	gagaaatggt	ttgaatgtgt	gacaatttcg	cagggcaatt	tcctcctgtg	5022
acggttgctg	ttacctggta	tttccactct	cacagtagaa	tagaaatggt	tgtgaaataa	5082
aactgatttt	aactggaagg	agaaacaggt	taatggactt	tgtgtttaag	agtgtaaac	5142
agtctgagag	aataaatggg	ggtcttgtct	tacattaggg	tgagagtttg	attatttagg	5202
atgatcccag	tgatttcatg	tgtgctctct	gacctctgag	tatcatagta	tcattaaagt	5262
aaagatttaa	gtctgtataa	aggaggagag	ttactgattg	gcaaaaaaga	ttggcacaaa	5322
gcatgaagaa	accccatttt	tcccagggtg	atcatgaaag	aaggctcaga	gaaagagggg	5382
aacaaaagcc	tgttcagcag	aggccccctt	agtattatgg	actgggcaaa	gccactata	5442
aactatagga	gaaagaagtt	ctgataaacc	tcttagtatg	ctcagcctcc	ttctttgcta	5502
tgtccctaag	ccaacagggg	ataacacagg	ccctggtgat	aatgaggggtg	tcctaaagat	5562
cctgatgtcc	atgacttcat	gtagttcagg	cacagaaaga	atagcaaagc	tgctgtcaga	5622
agtttgtcag	gcagagatgt	ttatggttga	ggatacccca	tatgaatctg	ggaaatgggc	5682
taggcctgag	gcagtcacct	attttagtaa	ctcaattgat	ccccaacctg	ccaggcttcc	5742
tatctcatag	gaaacatcct	cattgatcct	cttcagttgg	agtctcccaa	atttaatgtg	5802
gaagacaaag	tgttggaaaa	tcaaaagagg	ctcactcaaa	ccagcacagg	gagtcctcag	5862
agttgcagtt	caattcattt	taattagaaa	agtatgaaag	aggtataaca	ctcttattct	5922
agcacagtgc	cttgcctaga	gtagtagtat	gaaaactatt	tgttgaagaa	ataaatgaat	5982

960296.99080 - SEQ ID LISTING.txt

ggaaagacat agggaagaat gggctgtaaa tcctaattaa aaatagaggt cgacatgaga 6042  
 tacctggcat tttgggaagt gaccaaagat ggccagctag agattcagca tctccaggat 6102  
 cctcatgtgc ctctcctcaa agctccctcc catctgtagg agattagtga ggcaagggtgc 6162  
 tgctcagaga ggaggacctc attgttctta ggaccttggc cagttgttct caaagtgtgg 6222  
 tacctggatc agcagtatca ctatcacttg ggctagttag agatccagat tctggatcca 6282  
 taccatac ctactgaatt agaaactcta ggggatgaat agtggtgttc tctgttgcta 6342  
 agtgacagtg ggcccagcca cctattttta caagccctcc cagtgtattgt gatacatact 6402  
 aaagtgttag aaccattgta ctaggccatt ccagctgaat ctcaaacaga aggcagtaat 6462  
 gagagcctac aaatgggagg gacctaagt cctacctact cgctaatacgc aggtgcaaac 6522  
 acacaaggag tttggtgggc ttaaggctcag aggagtgtgt agggagggat gtatgtggaa 6582  
 ggtaagattc agggcaagct aaaaatccga tactgcaacg ttttccaaaa tcccagaagg 6642  
 caaactgtgc atgttctacc ctgaaccacc caagcaacac tttctacctt gccttatttt 6702  
 taattggatt cactgtccaa aatgcagagg tttgctttgc ttttttttca gaagttccaa 6762  
 acagcaactt tgagagcagt ggggtgcttg gcagctgttc tgtgttttcc aggaatccaa 6822  
 ctgagcattg aaatctctca tttgccgact tttttttata ggaagccaat taaaaaaaaa 6882  
 aaaagttttc ttatagtatt ggaactactt ctaattttta aatgactttt ttgatgtatt 6942  
 ttttggttaa tactatgtag tgtaatgtat aattgctctt gtttattgct tttacaatca 7002  
 tttttattaa acagataatg tctctaaagt ctttgccctca ggtatttttt ttttaaatcc 7062  
 taaacccttg gtgttcattc taaatataga agtgttgcat gtataggatt tcataaaggc 7122  
 taattgcata agaaagagta aacaccacag gcttgagggt tttggctgtt tttactaac 7182  
 aaggcagaat gtatgtacta cctgaattct acctgcattt caattaacta tacaatgtct 7242  
 gtttattaaa ttactttgat ttaaaaatta 7272

<210> 4  
 <211> 1168  
 <212> PRT  
 <213> Homo sapiens  
 <400> 4

Met Gly Lys Val Gly Ala Gly Gly Gly Ser Gln Ala Arg Leu Ser Ala  
 1 5 10 15  
 Leu Leu Ala Gly Ala Gly Leu Leu Ile Leu Cys Ala Pro Gly Val Cys  
 20 25 30  
 Gly Gly Gly Ser Cys Cys Pro Ser Pro His Pro Ser Ser Ala Pro Arg  
 35 40 45  
 Ser Ala Ser Thr Pro Arg Gly Phe Ser His Gln Gly Arg Pro Gly Arg  
 50 55 60  
 Ala Pro Ala Thr Pro Leu Pro Leu Val Val Arg Pro Leu Phe Ser Val  
 65 70 75 80  
 Ala Pro Gly Asp Arg Ala Leu Ser Leu Glu Arg Ala Arg Gly Thr Gly  
 85 90 95



Ala Ser Met Ala Val Ala Ala Arg Ser Gly Arg Arg Arg Arg Ser Gly  
 100 105 110  
 Ala Asp Gln Glu Lys Ala Glu Arg Gly Glu Gly Ala Ser Arg Ser Pro  
 115 120 125  
 Arg Gly Val Leu Arg Asp Gly Gly Gln Gln Glu Pro Gly Thr Arg Glu  
 130 135 140  
 Arg Asp Pro Asp Lys Ala Thr Arg Phe Arg Met Glu Glu Leu Arg Leu  
 145 150 155 160  
 Thr Ser Thr Thr Phe Ala Leu Thr Gly Asp Ser Ala His Asn Gln Ala  
 165 170 175  
 Met Val His Trp Ser Gly His Asn Ser Ser Val Ile Leu Ile Leu Thr  
 180 185 190  
 Lys Leu Tyr Asp Tyr Asn Leu Gly Ser Ile Thr Glu Ser Ser Leu Trp  
 195 200 205  
 Arg Ser Thr Asp Tyr Gly Thr Thr Tyr Glu Lys Leu Asn Asp Lys Val  
 210 215 220  
 Gly Leu Lys Thr Ile Leu Gly Tyr Leu Tyr Val Cys Pro Thr Asn Lys  
 225 230 235 240  
 Arg Lys Ile Met Leu Leu Thr Asp Pro Glu Ile Glu Ser Ser Leu Leu  
 245 250 255  
 Ile Ser Ser Asp Glu Gly Ala Thr Tyr Gln Lys Tyr Arg Leu Asn Phe  
 260 265 270  
 Tyr Ile Gln Ser Leu Leu Phe His Pro Lys Gln Glu Asp Trp Ile Leu  
 275 280 285  
 Ala Tyr Ser Gln Asp Gln Lys Leu Tyr Ser Ser Ala Glu Phe Gly Arg  
 290 295 300  
 Arg Trp Gln Leu Ile Gln Glu Gly Val Val Pro Asn Arg Phe Tyr Trp  
 305 310 315 320  
 Ser Val Met Gly Ser Asn Lys Glu Pro Asp Leu Val His Leu Glu Ala  
 325 330 335  
 Arg Thr Val Asp Gly His Ser His Tyr Leu Thr Cys Arg Met Gln Asn  
 340 345 350  
 Cys Thr Glu Ala Asn Arg Asn Gln Pro Phe Pro Gly Tyr Ile Asp Pro  
 355 360 365  
 Asp Ser Leu Ile Val Gln Asp His Tyr Val Phe Val Gln Leu Thr Ser  
 370 375 380  
 Gly Gly Arg Pro His Tyr Tyr Val Ser Tyr Arg Arg Asn Ala Phe Ala  
 385 390 395 400

Gln Met Lys Leu Pro<sub>405</sub> Lys Tyr Ala Leu Pro<sub>410</sub> Lys Asp Met His Val<sub>415</sub> Ile  
 Ser Thr Asp Glu<sub>420</sub> Asn Gln Val Phe Ala<sub>425</sub> Ala Val Gln Glu Trp<sub>430</sub> Asn Gln  
 Asn Asp Thr<sub>435</sub> Tyr Asn Leu Tyr Ile<sub>440</sub> Ser Asp Thr Arg Gly<sub>445</sub> Val Tyr Phe  
 Thr Leu<sub>450</sub> Ala Leu Glu Asn Val<sub>455</sub> Gln Ser Ser Arg Gly<sub>460</sub> Pro Glu Gly Asn  
 Ile Met Ile Asp Leu Tyr<sub>470</sub> Glu Val Ala Gly Ile<sub>475</sub> Lys Gly Met Phe Leu<sub>480</sub>  
 Ala Asn Lys Lys Ile<sub>485</sub> Asp Asn Gln Val Lys<sub>490</sub> Thr Phe Ile Thr Tyr<sub>495</sub> Asn  
 Lys Gly Arg Asp<sub>500</sub> Trp Arg Leu Leu Gln<sub>505</sub> Ala Pro Asp Thr Asp<sub>510</sub> Leu Arg  
 Gly Asp Pro<sub>515</sub> Val His Cys Leu Leu<sub>520</sub> Pro Tyr Cys Ser Leu<sub>525</sub> His Leu His  
 Leu Lys<sub>530</sub> Val Ser Glu Asn Pro<sub>535</sub> Tyr Thr Ser Gly Ile<sub>540</sub> Ile Ala Ser Lys  
 Asp Thr Ala Pro Ser Ile<sub>550</sub> Ile Val Ala Ser Gly<sub>555</sub> Asn Ile Gly Ser Glu<sub>560</sub>  
 Leu Ser Asp Thr Asp<sub>565</sub> Ile Ser Met Phe Val<sub>570</sub> Ser Ser Asp Ala Gly<sub>575</sub> Asn  
 Thr Trp Arg Gln<sub>580</sub> Ile Phe Glu Glu Glu<sub>585</sub> His Ser Val Leu Tyr<sub>590</sub> Leu Asp  
 Gln Gly Gly<sub>595</sub> Val Leu Val Ala Met<sub>600</sub> Lys His Thr Ser Leu<sub>605</sub> Pro Ile Arg  
 His Leu<sub>610</sub> Trp Leu Ser Phe Asp<sub>615</sub> Glu Gly Arg Ser Trp<sub>620</sub> Ser Lys Tyr Ser  
 Phe Thr Ser Ile Pro Leu<sub>630</sub> Phe Val Asp Gly<sub>635</sub> Val Leu Gly Glu Pro Gly<sub>640</sub>  
 Glu Glu Thr Leu Ile<sub>645</sub> Met Thr Val Phe Gly<sub>650</sub> His Phe Ser His Arg<sub>655</sub> Ser  
 Glu Trp Gln Leu<sub>660</sub> Val Lys Val Asp Tyr<sub>665</sub> Lys Ser Ile Phe Asp<sub>670</sub> Arg Arg  
 Cys Ala Glu Glu Asp Tyr Arg Pro Trp Gln Leu His Ser<sub>685</sub> Gln Gly Glu  
 Ala Cys Ile Met Gly Ala Lys Arg Ile Tyr Lys Lys Arg Lys Ser Glu

Arg Lys Cys Met Gln Gly Lys Tyr Ala Gly Ala Met Glu Ser Glu Pro  
705 710 715 720

Cys Val Cys Thr Glu Ala Asp Phe Asp Cys Asp Tyr Gly Tyr Glu Arg  
725 730 735

His Ser Asn Gly Gln Cys Leu Pro Ala Phe Trp Phe Asn Pro Ser Ser  
740 745 750

Leu Ser Lys Asp Cys Ser Leu Gly Gln Ser Tyr Leu Asn Ser Thr Gly  
755 760 765

Tyr Arg Lys Val Val Ser Asn Asn Cys Thr Asp Gly Val Arg Glu Gln  
770 775 780

Tyr Thr Ala Lys Pro Gln Lys Cys Pro Gly Lys Ala Pro Arg Gly Leu  
785 790 795 800

Arg Ile Val Thr Ala Asp Gly Lys Leu Thr Ala Glu Gln Gly His Asn  
805 810 815

Val Thr Leu Met Val Gln Leu Glu Glu Gly Asp Val Gln Arg Thr Leu  
820 825 830

Ile Gln Val Asp Phe Gly Asp Gly Ile Ala Val Ser Tyr Val Asn Leu  
835 840 845

Ser Ser Met Glu Asp Gly Ile Lys His Val Tyr Gln Asn Val Gly Ile  
850 855 860

Phe Arg Val Thr Val Gln Val Asp Asn Ser Leu Gly Ser Asp Ser Ala  
865 870 875 880

Val Leu Tyr Leu His Val Thr Cys Pro Leu Glu His Val His Leu Ser  
885 890 895

Leu Pro Phe Val Thr Thr Lys Asn Lys Glu Val Asn Ala Thr Ala Val  
900 905 910

Leu Trp Pro Ser Gln Val Gly Thr Leu Thr Tyr Val Trp Trp Tyr Gly  
915 920 925

Asn Asn Thr Glu Pro Leu Ile Thr Leu Glu Gly Ser Ile Ser Phe Arg  
930 935 940

Phe Thr Ser Glu Gly Met Asn Thr Ile Thr Val Gln Val Ser Ala Gly  
945 950 955 960

Asn Ala Ile Leu Gln Asp Thr Lys Thr Ile Ala Val Tyr Glu Glu Phe  
965 970 975

Arg Ser Leu Arg Leu Ser Phe Ser Pro Asn Leu Asp Asp Tyr Asn Pro  
980 985 990

Asp Ile Pro Glu Trp Arg Arg Asp Ile Gly Arg Val Ile Lys Lys Ser  
995 1000 1005

Leu Val Glu Ala Thr Gly Val Pro Gly Gln His Ile Leu Val Ala  
1010 1015 1020

Val Leu Pro Gly Leu Pro Thr Thr Ala Glu Leu Phe Val Leu Pro  
1025 1030 1035

Tyr Gln Asp Pro Ala Gly Glu Asn Lys Arg Ser Thr Asp Asp Leu  
1040 1045 1050

Glu Gln Ile Ser Glu Leu Leu Ile His Thr Leu Asn Gln Asn Ser  
1055 1060 1065

Val His Phe Glu Leu Lys Pro Gly Val Arg Val Leu Val His Ala  
1070 1075 1080

Ala His Leu Thr Ala Ala Pro Leu Val Asp Leu Thr Pro Thr His  
1085 1090 1095

Ser Gly Ser Ala Met Leu Met Leu Leu Ser Val Val Phe Val Gly  
1100 1105 1110

Leu Ala Val Phe Val Ile Tyr Lys Phe Lys Arg Arg Val Ala Leu  
1115 1120 1125

Pro Ser Pro Pro Ser Pro Ser Thr Gln Pro Gly Asp Ser Ser Leu  
1130 1135 1140

Arg Leu Gln Arg Ala Arg His Ala Thr Pro Pro Ser Thr Pro Lys  
1145 1150 1155

Arg Gly Ser Ala Gly Ala Gln Tyr Ala Ile  
1160 1165

<210> 5  
<211> 2033  
<212> PRT  
<213> Mus musculus

<400> 5

Tyr Ala Gln Tyr Leu Trp Ile Thr Phe Asp Phe Cys Ser Thr Ile His  
1 5 10 15

Gly Phe Ser Ile Pro Phe Arg Ala Ala Asp Leu Leu Leu His Ser Lys  
20 25 30

Ala Ser Asn Leu Leu Leu Gly Phe Asp Arg Ser His Pro Asn Lys Gln  
35 40 45

Leu Trp Lys Ser Asp Asp Phe Gly Gln Thr Trp Ile Met Ile Gln Glu  
50 55 60

His Val Lys Ser Phe Ser Trp Gly Ile Asp Pro Tyr Asp Gln Pro Asn  
65 70 75 80

Ala Ile Tyr Ile Glu Arg His Glu Pro Phe Gly Phe Ser Thr Val Leu  
85 90 95

Arg Ser Thr Asp Phe Phe Gln Ser Arg Glu Asn Gln Glu Val Ile Leu  
100 105 110

Glu Glu Val Arg Asp Phe Gln Leu Arg Asp Lys Tyr Met Phe Ala Thr  
115 120 125

Lys Val Val His Leu Pro Gly Ser Gln Gln Gln Ser Ser Val Gln Leu  
130 135 140

Trp Val Ser Phe Gly Arg Lys Pro Met Arg Ala Ala Gln Phe Val Thr  
145 150 155 160

Lys His Pro Ile Asn Glu Tyr Tyr Ile Ala Asp Ala Ala Glu Asp Gln  
165 170 175

Val Phe Val Cys Val Ser His Ser Asn Asn Ser Thr Asn Leu Tyr Ile  
180 185 190

Ser Glu Ala Glu Gly Leu Lys Phe Ser Leu Ser Leu Glu Asn Val Leu  
195 200 205

Tyr Tyr Ser Pro Gly Gly Ala Gly Ser Asp Thr Leu Val Arg Tyr Phe  
210 215 220

Ala Asn Glu Pro Phe Ala Asp Phe His Arg Val Glu Gly Leu Gln Gly  
225 230 235 240

Val Tyr Ile Ala Thr Leu Ile Asn Gly Ser Met Asn Glu Glu Asn Met  
245 250 255

Arg Ser Val Ile Thr Phe Asp Lys Gly Gly Thr Trp Glu Phe Leu Gln  
260 265 270

Ala Pro Ala Phe Thr Gly Tyr Gly Glu Lys Ile Asn Cys Glu Leu Ser  
275 280 285

Gln Gly Cys Ser Leu His Leu Ala Gln Arg Leu Ser Gln Leu Leu Asn  
290 295 300

Leu Gln Leu Arg Arg Met Pro Ile Leu Ser Lys Glu Ser Ala Pro Gly  
305 310 315 320

Leu Ile Ile Ala Thr Gly Ser Val Gly Lys Asn Leu Ala Ser Lys Thr  
325 330 335

Asn Val Tyr Ile Ser Ser Ser Ala Gly Ala Arg Trp Arg Glu Ala Leu  
340 345 350

Pro Gly Pro His Tyr Tyr Thr Trp Gly Asp His Gly Gly Ile Ile Met  
355 360 365

Ala Ile Ala Gln Gly Met Glu Thr Asn Glu Leu Lys Tyr Ser Thr Asn  
370 375 380

Glu Gly Glu Thr Trp Lys Thr Phe Val Phe Ser Glu Lys Pro Val Phe  
 385 390 395 400  
 Val Tyr Gly Leu Leu Thr Glu Pro Gly Glu Lys Ser Thr Val Phe Thr  
 405 410 415  
 Ile Phe Gly Ser Asn Lys Glu Ser Val His Ser Trp Leu Ile Leu Gln  
 420 425 430  
 Val Asn Ala Thr Asp Ala Leu Gly Val Pro Cys Thr Glu Asn Asp Tyr  
 435 440 445  
 Lys Leu Trp Ser Pro Ser Asp Glu Arg Gly Asn Glu Cys Leu Leu Gly  
 450 455 460  
 His Lys Thr Val Phe Lys Arg Arg Thr Pro His Ala Thr Cys Phe Asn  
 465 470 475 480  
 Gly Glu Asp Phe Asp Arg Pro Val Val Val Ser Asn Cys Ser Cys Thr  
 485 490 495  
 Arg Glu Asp Tyr Glu Cys Asp Phe Gly Phe Lys Met Ser Glu Asp Leu  
 500 505 510  
 Ser Leu Glu Val Cys Val Pro Asp Pro Glu Phe Phe Gly Lys Pro Tyr  
 515 520 525  
 Ser Pro Pro Val Pro Cys Pro Val Gly Ser Ser Tyr Arg Arg Thr Arg  
 530 535 540  
 Gly Tyr Arg Lys Ile Ser Gly Asp Thr Cys Ser Gly Gly Asp Val Glu  
 545 550 555 560  
 Ala Arg Leu Glu Gly Glu Leu Val Pro Cys Pro Leu Ala Glu Glu Asn  
 565 570 575  
 Glu Phe Ile Leu Tyr Ala Met Arg Lys Phe Ile Tyr Arg Tyr Asp Leu  
 580 585 590  
 Ala Ser Gly Ala Thr Glu Gln Leu Pro Leu Ser Gly Leu Arg Ala Ala  
 595 600 605  
 Val Ala Leu Asp Phe Gly Tyr Glu Arg Asn Cys Leu Tyr Trp Ser Asp  
 610 615 620  
 Leu Ala Leu Asp Thr Ile Gln Arg Leu Cys Leu Asn Gly Ser Thr Gly  
 625 630 635 640  
 Gln Glu Val Ile Ile Asn Ser Gly Leu Glu Thr Val Glu Ala Leu Ala  
 645 650 655  
 Phe Glu Pro Leu Ser Gln Leu Leu Tyr Trp Val Asp Ala Gly Phe Lys  
 660 665 670  
 Lys Ile Glu Val Ala Asn Pro Asp Gly Asp Phe Arg Leu Thr Ile Val  
 675 680 685

Asn Ser Ser Val Leu Asp Arg Pro Arg Ala Leu Val Leu Val Pro Gln  
 690 695 700  
 Glu Gly Val Met Phe Trp Thr Asp Trp Gly Asp Leu Lys Pro Gly Ile  
 705 710 715 720  
 Tyr Arg Ser Tyr Met Asp Gly Ser Ala Ala Tyr Arg Leu Val Ser Glu  
 725 730 735  
 Asp Val Lys Trp Pro Asn Gly Ile Ser Val Asp Ser Gln Trp Ile Tyr  
 740 745 750  
 Trp Thr Asp Ala Tyr Leu Asp Cys Ile Glu Arg Ile Thr Phe Ser Gly  
 755 760 765  
 Gln Gln Arg Ser Val Ile Leu Asp Ser Leu Pro His Pro Tyr Ala Ile  
 770 775 780  
 Ala Val Phe Lys Asn Glu Ile Tyr Trp Asp Asp Trp Ser Gln Leu Ser  
 785 790 795 800  
 Ile Phe Arg Ala Ser Lys His Ser Arg Ser Gln Val Glu Ile Leu Ala  
 805 810 815  
 Ser Gln Leu Thr Gly Leu Met Asp Met Lys Val Phe Tyr Lys Gly Lys  
 820 825 830  
 Asn Ala Gly Ser Asn Ala Cys Val Pro Gln Pro Cys Ser Leu Leu Cys  
 835 840 845  
 Leu Pro Lys Ala Asn Asn Ser Lys Ser Cys Arg Cys Pro Glu Gly Val  
 850 855 860  
 Ala Ser Ser Val Leu Pro Ser Gly Asp Leu Met Cys Asp Cys Pro Gln  
 865 870 875 880  
 Gly Tyr Gln Arg Lys Asn Asn Thr Cys Val Lys Glu Glu Asn Thr Cys  
 885 890 895  
 Leu Arg Asn Gln Tyr Arg Cys Ser Asn Gly Asn Cys Ile Asn Ser Ile  
 900 905 910  
 Trp Trp Cys Asp Phe Asp Asn Asp Cys Gly Asp Met Ser Asp Glu Arg  
 915 920 925  
 Asn Cys Pro Thr Thr Val Cys Asp Ala Asp Thr Gln Phe Arg Cys Gln  
 930 935 940  
 Glu Ser Gly Thr Cys Ile Pro Leu Ser Tyr Lys Cys Asp Leu Glu Asp  
 945 950 955 960  
 Asp Cys Gly Asp Asn Ser Asp Glu Ser His Cys Glu Met His Gln Cys  
 965 970 975  
 Arg Ser Asp Glu Phe Asn Cys Ser Ser Gly Met Cys Ile Arg Ser Ser

Trp Val Cys Asp Gly Asp Asn Asp Cys Arg Asp Trp Ser Asp Glu Ala  
 995 1000 1005  
 Asn Cys Thr Ala Ile Tyr His Thr Cys Glu Ala Ser Asn Phe Gln  
 1010 1015 1020  
 Cys His Asn Gly His Cys Ile Pro Gln Arg Trp Ala Cys Asp Gly  
 1025 1030 1035  
 Asp Ala Asp Cys Gln Asp Gly Ser Asp Glu Asp Pro Val Ser Cys  
 1040 1045 1050  
 Glu Lys Lys Cys Asn Gly Phe His Cys Pro Asn Gly Thr Cys Ile  
 1055 1060 1065  
 Pro Ser Ser Lys His Cys Asp Gly Leu Arg Asp Cys Pro Asp Gly  
 1070 1075 1080  
 Ser Asp Glu Gln His Cys Glu Pro Phe Cys Thr Arg Phe Met Asp  
 1085 1090 1095  
 Phe Val Cys Lys Asn Arg Gln Gln Cys Leu Phe His Ser Met Val  
 1100 1105 1110  
 Cys Asp Gly Ile Val Gln Cys Arg Asp Gly Ser Asp Glu Asp Ala  
 1115 1120 1125  
 Ala Phe Ala Gly Cys Ser Gln Asp Pro Glu Phe His Lys Glu Cys  
 1130 1135 1140  
 Asp Glu Phe Gly Phe Gln Cys Gln Asn Gly Val Cys Ile Ser Leu  
 1145 1150 1155  
 Ile Trp Lys Cys Asp Gly Met Asp Asp Cys Gly Asp Tyr Ser Asp  
 1160 1165 1170  
 Glu Ala Asn Cys Glu Asn Pro Thr Glu Ala Pro Asn Cys Ser Arg  
 1175 1180 1185  
 Tyr Phe Gln Phe His Cys Glu Asn Gly His Cys Ile Pro Asn Arg  
 1190 1195 1200  
 Trp Lys Cys Asp Arg Glu Asn Asp Cys Gly Asp Trp Ser Asp Glu  
 1205 1210 1215  
 Lys Asp Cys Gly Asp Ser His Val Leu Pro Ser Pro Thr Pro Gly  
 1220 1225 1230  
 Pro Ser Thr Cys Leu Pro Asn Tyr Phe Arg Cys Ser Ser Gly Ala  
 1235 1240 1245  
 Cys Val Met Gly Thr Trp Val Cys Asp Gly Tyr Arg Asp Cys Ala  
 1250 1255 1260



Asp 1265	Gly	Ser	Asp	Glu	Glu	Ala 1270	Cys	Pro	Ser	Leu	Ala 1275	Asn	Ser	Thr
Ala 1280	Ala	Ser	Thr	Pro	Thr	Gln 1285	Leu	Gly	Gln	Cys	Asp 1290	Arg	Phe	Glu
Phe 1295	Glu	Cys	His	Gln	Pro	Lys 1300	Lys	Cys	Ile	Pro	Asn 1305	Trp	Lys	Arg
Cys 1310	Asp	Gly	His	Gln	Asp	Cys 1315	Gln	Asp	Gly	Gln	Asp 1320	Glu	Ala	Asn
Cys 1325	Pro	Thr	His	Ser	Thr	Leu 1330	Thr	Cys	Thr	Ser	Arg 1335	Glu	Phe	Lys
Cys 1340	Glu	Asp	Gly	Glu	Ala	Cys 1345	Ile	Val	Leu	Ser	Glu 1350	Arg	Cys	Asp
Gly 1355	Phe	Leu	Asp	Cys	Ser	Asp 1360	Glu	Ser	Asp	Glu	Lys 1365	Ala	Cys	Ser
Asp 1370	Glu	Leu	Thr	Val	Tyr	Lys 1375	Val	Gln	Asn	Leu	Gln 1380	Trp	Thr	Ala
Asp 1385	Phe	Ser	Gly	Asp	Val	Thr 1390	Leu	Thr	Trp	Met	Arg 1395	Pro	Lys	Lys
Met 1400	Pro	Ser	Ala	Ser	Cys	Val 1405	Tyr	Asn	Val	Tyr	Tyr 1410	Arg	Val	Val
Gly 1415	Glu	Ser	Ile	Trp	Lys	Thr 1420	Leu	Glu	Thr	His	Ser 1425	Asn	Lys	Thr
Ser 1430	Thr	Val	Leu	Lys	Val	Leu 1435	Lys	Pro	Asp	Thr	Thr 1440	Tyr	Gln	Val
Lys 1445	Val	Gln	Val	His	Cys	Leu 1450	Asn	Lys	Val	His	Asn 1455	Thr	Asn	Asp
Phe 1460	Val	Thr	Leu	Arg	Thr	Pro 1465	Glu	Gly	Leu	Pro	Asp 1470	Ala	Pro	Arg
Asn 1475	Leu	Gln	Leu	Ser	Leu	Asn 1480	Arg	Glu	Glu	Glu	Gly 1485	Val	Ile	Leu
Gly 1490	His	Trp	Ala	Pro	Pro	Val 1495	His	Thr	His	Gly	Leu 1500	Ile	Arg	Glu
Tyr 1505	Ile	Val	Glu	Tyr	Ser	Arg 1510	Ser	Gly	Ser	Lys	Met 1515	Trp	Ala	Ser
Gln 1520	Arg	Ala	Ala	Ser	Asn	Ser 1525	Thr	Glu	Ile	Lys	Asn 1530	Leu	Leu	Leu
Asn 1535	Ala	Leu	Tyr	Thr	Val	Arg 1540	Val	Ala	Ala	Val	Thr 1545	Ser	Arg	Gly

Ile	Gly	Asn	Trp	Ser	Asp	Ser	Lys	Ser	Ile	Thr	Thr	Ile	Lys	Gly
	1550					1555					1560			
Lys	Val	Ile	Gln	Ala	Pro	Asn	Ile	His	Ile	Asp	Ser	Tyr	Asp	Glu
	1565					1570					1575			
Asn	Ser	Leu	Ser	Phe	Thr	Leu	Thr	Met	Asp	Gly	Asp	Ile	Lys	Val
	1580					1585					1590			
Asn	Gly	Tyr	Val	Val	Asn	Leu	Phe	Trp	Ser	Phe	Asp	Ala	His	Lys
	1595					1600					1605			
Gln	Glu	Lys	Lys	Thr	Leu	Ser	Phe	Arg	Gly	Gly	Ser	Ala	Leu	Ser
	1610					1615					1620			
His	Lys	Val	Ser	Asn	Leu	Thr	Ala	His	Thr	Ser	Tyr	Glu	Ile	Ser
	1625					1630					1635			
Ala	Trp	Ala	Lys	Thr	Asp	Leu	Gly	Asp	Ser	Pro	Leu	Ala	Phe	Glu
	1640					1645					1650			
His	Ile	Leu	Thr	Arg	Gly	Ser	Ser	Pro	Pro	Ala	Pro	Ser	Leu	Lys
	1655					1660					1665			
Ala	Lys	Ala	Ile	Asn	Gln	Thr	Ala	Val	Glu	Cys	Ile	Trp	Thr	Gly
	1670					1675					1680			
Pro	Lys	Asn	Val	Val	Tyr	Gly	Ile	Phe	Tyr	Ala	Thr	Ser	Phe	Leu
	1685					1690					1695			
Asp	Leu	Tyr	Arg	Asn	Pro	Lys	Ser	Val	Thr	Thr	Ser	Leu	His	Asn
	1700					1705					1710			
Lys	Thr	Val	Ile	Val	Ser	Lys	Asp	Glu	Gln	Tyr	Leu	Phe	Leu	Val
	1715					1720					1725			
Arg	Val	Leu	Ile	Pro	Tyr	Gln	Gly	Pro	Ser	Ser	Asp	Tyr	Val	Val
	1730					1735					1740			
Val	Lys	Met	Ile	Pro	Asp	Ser	Arg	Leu	Pro	Pro	Arg	His	Leu	His
	1745					1750					1755			
Ala	Val	His	Ile	Gly	Lys	Thr	Ser	Ala	Leu	Ile	Lys	Trp	Glu	Ser
	1760					1765					1770			
Pro	Tyr	Asp	Ser	Pro	Asp	Gln	Asp	Leu	Phe	Tyr	Ala	Ile	Ala	Val
	1775					1780					1785			
Lys	Asp	Leu	Ile	Arg	Lys	Thr	Asp	Arg	Ser	Tyr	Lys	Val	Arg	Ser
	1790					1795					1800			
Arg	Asn	Ser	Thr	Val	Glu	Tyr	Ser	Leu	Ser	Lys	Leu	Glu	Pro	Gly
	1805					1810					1815			
Gly	Lys	Tyr	His	Ile	Ile	Val	Gln	Leu	Gly	Asn	Met	Ser	Lys	Asp
	1820					1825					1830			

Ser Ser Ile Lys Ile Thr Thr Val Ser Leu Ser Ala Pro Asp Ala  
 1835 1840 1845  
 Leu Lys Ile Ile Thr Glu Asn Asp His Val Leu Leu Phe Trp Lys  
 1850 1855 1860  
 Ser Leu Ala Leu Lys Glu Lys Gln Phe Asn Glu Thr Arg Gly Tyr  
 1865 1870 1875  
 Glu Ile His Met Ser Asp Ser Ala Val Asn Leu Thr Ala Tyr Leu  
 1880 1885 1890  
 Gly Asn Thr Thr Asp Asn Phe Phe Lys Val Ser Asn Leu Lys Met  
 1895 1900 1905  
 Gly His Asn Tyr Thr Phe Thr Val Gln Ala Arg Cys Leu Phe Gly  
 1910 1915 1920  
 Ser Gln Ile Cys Gly Glu Pro Ala Val Leu Leu Tyr Asp Glu Leu  
 1925 1930 1935  
 Ser Ser Gly Ala Asp Ala Ala Val Ile Gln Ala Ala Arg Ser Thr  
 1940 1945 1950  
 Asp Val Ala Ala Val Val Val Pro Ile Leu Phe Leu Ile Leu Leu  
 1955 1960 1965  
 Ser Leu Gly Val Gly Phe Ala Ile Leu Tyr Thr Lys His Arg Arg  
 1970 1975 1980  
 Leu Gln Ser Ser Phe Ser Ala Phe Ala Asn Ser His Tyr Ser Ser  
 1985 1990 1995  
 Arg Leu Gly Ser Ala Ile Phe Ser Ser Gly Asp Asp Leu Gly Glu  
 2000 2005 2010  
 Asp Asp Glu Asp Ala Pro Met Ile Thr Gly Phe Ser Asp Asp Val  
 2015 2020 2025  
 Pro Met Val Ile Ala  
 2030  
 <210> 6  
 <211> 825  
 <212> PRT  
 <213> Mus musculus  
 <400> 6  
 Met Glu Arg Pro Arg Gly Ala Ala Asp Gly Leu Leu Arg Trp Pro Leu  
 1 5 10 15  
 Gly Leu Leu Leu Leu Leu Gln Leu Leu Pro Pro Ala Ala Val Gly Gln  
 20 25 30  
 Asp Arg Leu Asp Ala Pro Pro Pro Pro Ala Pro Pro Leu Leu Arg Trp  
 35 40 45

Ala Gly Pro Val Gly Val Ser Trp Gly Leu Arg Ala Ala Ala Pro Gly  
 50 55 60  
 Gly Pro Val Pro Arg Ala Gly Arg Trp Arg Arg Gly Ala Pro Ala Glu  
 65 70 75 80  
 Asp Gln Asp Cys Gly Arg Leu Pro Asp Phe Ile Ala Lys Leu Thr Asn  
 85 90 95  
 Asn Thr His Gln His Val Phe Asp Asp Leu Ser Gly Ser Val Ser Leu  
 100 105 110  
 Ser Trp Val Gly Asp Ser Thr Gly Val Ile Leu Val Leu Thr Thr Phe  
 115 120 125  
 Gln Val Pro Leu Val Ile Val Ser Phe Gly Gln Ser Lys Leu Tyr Arg  
 130 135 140  
 Ser Glu Asp Tyr Gly Lys Asn Phe Lys Asp Ile Thr Asn Leu Ile Asn  
 145 150 155 160  
 Asn Thr Phe Ile Arg Thr Glu Phe Gly Met Ala Ile Gly Pro Glu Asn  
 165 170 175  
 Ser Gly Lys Val Ile Leu Thr Ala Glu Val Ser Gly Gly Ser Arg Gly  
 180 185 190  
 Gly Arg Val Phe Arg Ser Ser Asp Phe Ala Lys Asn Phe Val Gln Thr  
 195 200 205  
 Asp Leu Pro Phe His Pro Leu Thr Gln Met Met Tyr Ser Pro Gln Asn  
 210 215 220  
 Ser Asp Tyr Leu Leu Ala Leu Ser Thr Glu Asn Gly Leu Trp Val Ser  
 225 230 235 240  
 Lys Asn Phe Gly Glu Lys Trp Glu Glu Ile His Lys Ala Val Cys Leu  
 245 250 255  
 Ala Lys Trp Gly Pro Asn Asn Ile Ile Phe Phe Thr Thr His Val Asn  
 260 265 270  
 Gly Ser Cys Lys Ala Asp Leu Gly Ala Leu Glu Leu Trp Arg Thr Ser  
 275 280 285  
 Asp Leu Gly Lys Thr Phe Lys Thr Ile Gly Val Lys Ile Tyr Ser Phe  
 290 295 300  
 Gly Leu Gly Gly Arg Phe Leu Phe Ala Ser Glu Met Ala Asp Lys Asp  
 305 310 315 320  
 Thr Thr Arg Arg Ile His Val Ser Thr Asp Gln Gly Asp Thr Trp Ser  
 325 330 335  
 Met Ala Gln Leu Pro Ser Val Gly Gln Glu Gln Phe Tyr Ser Ile Leu

340

345

350

Ala Ala Asn Glu Asp Met Val Phe Met His Val Asp Glu Pro Gly Asp  
355 360 365

Thr Gly Phe Gly Thr Ile Phe Thr Ser Asp Asp Arg Gly Ile Val Tyr  
370 375 380

Ser Lys Ser Leu Asp Arg His Leu Tyr Thr Thr Thr Gly Gly Glu Thr  
385 390 395 400

Asp Phe Thr Asn Val Thr Ser Leu Arg Gly Val Tyr Ile Thr Ser Thr  
405 410 415

Leu Ser Glu Asp Asn Ser Ile Gln Ser Met Ile Thr Phe Asp Gln Gly  
420 425 430

Gly Arg Trp Glu His Leu Arg Lys Pro Glu Asn Ser Lys Cys Asp Ala  
435 440 445

Thr Ala Lys Asn Lys Asn Glu Cys Ser Leu His Ile His Ala Ser Tyr  
450 455 460

Ser Ile Ser Gln Lys Leu Asn Val Pro Met Ala Pro Leu Ser Glu Pro  
465 470 475 480

Asn Ala Val Gly Ile Val Ile Ala His Gly Ser Val Gly Asp Ala Ile  
485 490 495

Ser Val Met Val Pro Asp Val Tyr Ile Ser Asp Asp Gly Gly Tyr Ser  
500 505 510

Trp Ala Lys Met Leu Glu Gly Pro His Tyr Tyr Thr Ile Leu Asp Ser  
515 520 525

Gly Gly Ile Ile Val Ala Ile Glu His Ser Asn Arg Pro Ile Asn Val  
530 535 540

Ile Lys Phe Ser Thr Asp Glu Gly Gln Cys Trp Gln Ser Tyr Val Phe  
545 550 555 560

Thr Gln Glu Pro Ile Tyr Phe Thr Gly Leu Ala Ser Glu Pro Gly Ala  
565 570 575

Arg Ser Met Asn Ile Ser Ile Trp Gly Phe Thr Glu Ser Phe Ile Thr  
580 585 590

Arg Gln Trp Val Ser Tyr Thr Val Asp Phe Lys Asp Ile Leu Glu Arg  
595 600 605

Asn Cys Glu Glu Asp Asp Tyr Thr Thr Trp Leu Ala His Ser Thr Asp  
610 615 620

Pro Gly Asp Tyr Lys Asp Gly Cys Ile Leu Gly Tyr Lys Glu Gln Phe  
625 630 635 640

Leu Arg Leu Arg Lys Ser Ser Val Cys Gln Asn Gly Arg Asp Tyr Val  
645 650 655

Val Ala Lys Gln Pro Ser Val Cys Pro Cys Ser Leu Glu Asp Phe Leu  
660 665 670

Cys Asp Phe Gly Tyr Phe Arg Pro Glu Asn Ala Ser Glu Cys Val Glu  
675 680 685

Gln Pro Glu Leu Lys Gly His Glu Leu Glu Phe Cys Leu Tyr Gly Lys  
690 695 700

Glu Glu His Leu Thr Thr Asn Gly Tyr Arg Lys Ile Pro Gly Asp Lys  
705 710 715 720

Cys Gln Gly Gly Met Asn Pro Ala Arg Glu Val Lys Asp Leu Lys Lys  
725 730 735

Lys Cys Thr Ser Asn Phe Leu Asn Pro Thr Lys Gln Asn Ser Lys Ser  
740 745 750

Asn Ser Val Pro Ile Ile Leu Ala Ile Val Gly Leu Met Leu Val Thr  
755 760 765

Val Val Ala Gly Val Leu Ile Val Lys Lys Tyr Val Cys Gly Gly Arg  
770 775 780

Phe Leu Val His Arg Tyr Ser Val Leu Gln Gln His Ala Glu Ala Asp  
785 790 795 800

Gly Val Glu Ala Leu Asp Ser Thr Ser His Ala Lys Ser Gly Tyr His  
805 810 815

Asp Asp Ser Asp Glu Asp Leu Leu Glu  
820 825

<210> 7  
<211> 1577  
<212> PRT  
<213> *Saccharomyces cerevisiae*

<400> 7

Met Ile Leu Leu His Phe Val Tyr Ser Leu Trp Ala Leu Leu Leu Ile  
1 5 10 15

Pro Leu Ile Asn Ala Glu Glu Phe Thr Pro Lys Val Thr Lys Thr Ile  
20 25 30

Ala Gln Asp Ser Phe Glu Ile Leu Ser Phe Asp Asp Ser Asn Thr Leu  
35 40 45

Ile Arg Lys Gln Asp Ala Ser Val Thr Ile Ser Phe Asp Asp Gly Glu  
50 55 60

Thr Trp Glu Lys Val Glu Gly Ile Glu Asp Glu Ile Thr Trp Ile Tyr  
65 70 75 80

Ile Asp Pro Phe Asn Arg His Asp Arg Ala Val Ala Thr Ser Met Tyr  
 85 90 95  
 Glu Ser Arg Leu Tyr Ile Thr Asn Asp Gln Gly Lys Ser Trp Glu Arg  
 100 105 110  
 Ile Thr Leu Pro Asp Ser Glu Lys Asn Ile Ser Ser Arg Gly Cys Tyr  
 115 120 125  
 Ile Glu Thr His Pro Leu Asn Lys Asn Tyr Phe Leu Ala Lys Cys Asn  
 130 135 140  
 Tyr Cys Glu Lys Thr Glu Val Asp Asn Glu Glu Asn Ser Gly Asp Glu  
 145 150 155 160  
 Glu Gly Ala Pro Val Ile Phe Asn Ile Thr Arg Cys Thr Asp Lys Val  
 165 170 175  
 Phe Ala Ser Asn Asp Gly Gly Lys Ser Phe Ser Glu Ile Lys Ser Ser  
 180 185 190  
 Leu Glu Arg Asn Glu Asn Ser Ala Ile Ser Ile Ser Asp Cys Gly Phe  
 195 200 205  
 Ala Lys Thr Gly Lys Asp Ser Asp Leu Glu Ser Ser Asp Thr Ser Ile  
 210 215 220  
 Ile Cys Leu Phe Gln Asn Met Gln Leu Ile Met Asp Glu Phe Ser Ser  
 225 230 235 240  
 Pro Tyr Thr Glu Ser Lys Leu Val Leu Thr Thr Asp Trp Gly Lys Ser  
 245 250 255  
 Leu Lys Glu Phe Asp Gln Phe Lys Asp Lys Val Val Asn Gly Tyr Arg  
 260 265 270  
 Ile Leu Lys Ser His Met Val Val Ile Thr Gln Gly Asp Arg Tyr Asn  
 275 280 285  
 Asp Met Ser Ser Met Asp Val Trp Val Ser Asn Asp Leu Ser Asn Phe  
 290 295 300  
 Lys Met Ala Tyr Met Pro Thr Gln Leu Arg His Ser Met Gln Gly Glu  
 305 310 315 320  
 Ile Tyr Glu Asp Ala Met Gly Arg Ile Ile Leu Pro Met Ser Arg Glu  
 325 330 335  
 Arg Ser Asp Gln Glu Glu Asp Lys Gly Ile Val Ser Glu Ile Leu Ile  
 340 345 350  
 Ser Asp Ser Gln Gly Leu Lys Phe Ser Pro Ile Pro Trp Thr Ala Asn  
 355 360 365  
 Glu Val Phe Gly Tyr Ile Asn Leu Tyr Gln Pro Thr Tyr Leu Lys Gly  
 370 375 380

Thr Met Ile Ala Ser Leu Tyr Pro Leu Ser Arg Arg Arg Asn Arg Lys  
 385 390 395 400  
 Gly Lys Ala Lys Gly Val Lys Asn Lys Gly Val Thr Lys Ile Ser Val  
 405 410 415  
 Asp Asn Gly Leu Thr Trp Thr Val Leu Lys Val Val Asp Pro Asp Asn  
 420 425 430  
 Ala Asp Ser Phe Asp Cys Asp Ile Thr Asp Phe Glu Asn Cys Ser Leu  
 435 440 445  
 Gln Asn Met Phe Tyr Thr Arg Glu Gly Ser Thr Pro Thr Ala Gly Ile  
 450 455 460  
 Leu Met Thr Thr Gly Ile Val Gly Asp Gly Ser Val Phe Asp Trp Gly  
 465 470 475 480  
 Asp Gln Arg Thr Phe Ile Ser Arg Asp Gly Gly Leu Thr Trp Lys Leu  
 485 490 495  
 Ala Phe Asp Phe Pro Cys Leu Tyr Ala Val Gly Asp Tyr Gly Asn Val  
 500 505 510  
 Ile Val Ala Ile Pro Tyr Asn Ala Asp Glu Asp Asp Asp Pro Gln Ser  
 515 520 525  
 Glu Phe Tyr Tyr Ser Leu Asp Gln Gly Lys Thr Trp Thr Glu Tyr Gln  
 530 535 540  
 Leu Glu Thr Thr Ile Tyr Pro Asn Glu Val Met Asn Thr Thr Pro Asp  
 545 550 555 560  
 Gly Ser Gly Ala Lys Phe Ile Leu Asn Gly Phe Thr Leu Ala His Met  
 565 570 575  
 Asp Gly Thr Thr Asn Phe Ile Tyr Ala Ile Asp Phe Ser Thr Ala Phe  
 580 585 590  
 Asn Asp Lys Thr Cys Glu Glu Asn Asp Phe Glu Asp Trp Asn Leu Ala  
 595 600 605  
 Glu Gly Lys Cys Val Asn Gly Val Lys Tyr Lys Ile Arg Arg Arg Lys  
 610 615 620  
 Gln Asp Ala Gln Cys Leu Val Lys Lys Val Phe Glu Asp Leu Gln Leu  
 625 630 635 640  
 Phe Glu Thr Ala Cys Asp Lys Cys Thr Glu Ala Asp Tyr Glu Cys Ala  
 645 650 655  
 Phe Glu Phe Val Arg Asp Ala Thr Gly Lys Cys Val Pro Asp Tyr Asn  
 660 665 670  
 Leu Ile Val Leu Ser Asp Val Cys Asp Lys Thr Lys Lys Lys Thr Val  
 675 680 685



Pro Val Lys Pro Leu Gln Leu Val Lys Gly Asp Lys Cys Lys Lys Pro  
 690 695 700  
 Met Thr Val Lys Ser Val Asp Ile Ser Cys Glu Gly Val Pro Lys Lys  
 705 710 715 720  
 Gly Thr Asn Asp Lys Glu Ile Val Val Thr Glu Asn Lys Phe Asp Phe  
 725 730 735  
 Lys Ile Gln Phe Tyr Gln Tyr Phe Asp Thr Val Thr Asp Glu Ser Leu  
 740 745 750  
 Leu Met Ile Asn Ser Arg Gly Glu Ala Tyr Ile Ser His Asp Gly Gly  
 755 760 765  
 Gln Thr Ile Arg Arg Phe Asp Ser Asn Gly Glu Thr Ile Ile Glu Val  
 770 775 780  
 Val Phe Asn Pro Tyr Tyr Asn Ser Ser Ala Tyr Leu Phe Gly Ser Lys  
 785 790 795 800  
 Gly Ser Ile Phe Ser Thr His Asp Arg Gly Tyr Ser Phe Met Thr Ala  
 805 810 815  
 Lys Leu Pro Glu Ala Arg Gln Leu Gly Met Pro Leu Asp Phe Asn Ala  
 820 825 830  
 Lys Ala Gln Asp Thr Phe Ile Tyr Tyr Gly Gly Lys Asn Cys Glu Ser  
 835 840 845  
 Ile Leu Ser Pro Glu Cys His Ala Val Ala Tyr Leu Thr Asn Asp Gly  
 850 855 860  
 Gly Glu Thr Phe Thr Glu Met Leu Asp Asn Ala Ile His Cys Glu Phe  
 865 870 875 880  
 Ala Gly Ser Leu Phe Lys Tyr Pro Ser Asn Glu Asp Met Val Met Cys  
 885 890 895  
 Gln Val Lys Glu Lys Ser Ser Gln Thr Arg Ser Leu Val Ser Ser Thr  
 900 905 910  
 Asp Phe Phe Gln Asp Asp Lys Asn Thr Val Phe Glu Asn Ile Ile Gly  
 915 920 925  
 Tyr Leu Ser Thr Gly Gly Tyr Ile Ile Val Ala Val Pro His Glu Asn  
 930 935 940  
 Asn Glu Leu Arg Ala Tyr Val Thr Ile Asp Gly Thr Glu Phe Ala Glu  
 945 950 955 960  
 Ala Lys Phe Pro Tyr Asp Glu Asp Val Gly Lys Gln Glu Ala Phe Thr  
 965 970 975  
 Ile Leu Glu Ser Glu Lys Gly Ser Ile Phe Leu His Leu Ala Thr Asn

Leu Val Pro Gly Arg Asp Phe Gly Asn Leu Leu Lys Ser Asn Ser Asn  
995 1000 1005

Gly Thr Ser Phe Val Thr Leu Glu His Ala Val Asn Arg Asn Thr  
1010 1015 1020

Phe Gly Tyr Val Asp Phe Glu Lys Ile Gln Gly Leu Glu Gly Ile  
1025 1030 1035

Ile Leu Thr Asn Ile Val Ser Asn Ser Asp Lys Val Ala Glu Asn  
1040 1045 1050

Lys Glu Asp Lys Gln Leu Lys Thr Lys Ile Thr Phe Asn Glu Gly  
1055 1060 1065

Ser Asp Trp Asn Phe Leu Lys Pro Pro Lys Arg Asp Ser Glu Gly  
1070 1075 1080

Lys Lys Phe Phe Cys Ser Ser Lys Ser Leu Asp Glu Cys Ser Leu  
1085 1090 1095

His Leu His Gly Tyr Thr Glu Arg Lys Asp Ile Arg Asp Thr Tyr  
1100 1105 1110

Ser Ser Gly Ser Ala Leu Gly Met Met Phe Gly Val Gly Asn Val  
1115 1120 1125

Gly Pro Asn Leu Leu Pro Tyr Lys Glu Cys Ser Thr Phe Phe Thr  
1130 1135 1140

Thr Asp Gly Gly Glu Thr Trp Ala Glu Val Lys Lys Thr Pro His  
1145 1150 1155

Gln Trp Glu Tyr Gly Asp His Gly Gly Ile Leu Val Leu Val Pro  
1160 1165 1170

Glu Asn Ser Glu Thr Asp Ser Ile Ser Tyr Ser Thr Asp Phe Gly  
1175 1180 1185

Lys Thr Trp Lys Asp Tyr Lys Phe Cys Ala Asp Lys Val Leu Val  
1190 1195 1200

Lys Asp Ile Thr Thr Val Pro Arg Asp Ser Ala Leu Arg Phe Leu  
1205 1210 1215

Leu Phe Gly Glu Ala Ala Asp Ile Gly Gly Ser Ser Phe Arg Thr  
1220 1225 1230

Tyr Thr Ile Asp Phe Arg Asn Ile Phe Glu Arg Gln Cys Asp Phe  
1235 1240 1245

Asp Ile Thr Gly Lys Glu Ser Ala Asp Tyr Lys Tyr Ser Pro Leu  
1250 1255 1260

Ser	Ser	Lys	Ser	Asn	Cys	Leu	Phe	Gly	His	Gln	Thr	Glu	Phe	Leu
1265						1270					1275			
Arg	Lys	Thr	Asp	Glu	Asn	Cys	Phe	Ile	Gly	Asn	Ile	Pro	Leu	Ser
1280						1285					1290			
Glu	Phe	Ser	Arg	Asn	Ile	Lys	Asn	Cys	Ser	Cys	Thr	Arg	Gln	Asp
1295						1300					1305			
Phe	Glu	Cys	Asp	Tyr	Asn	Phe	Tyr	Lys	Ala	Asn	Asp	Gly	Thr	Cys
1310						1315					1320			
Lys	Leu	Val	Lys	Gly	Leu	Ser	Pro	Ala	Asn	Ala	Ala	Asp	Val	Cys
1325						1330					1335			
Lys	Lys	Glu	Pro	Asp	Leu	Ile	Glu	Tyr	Phe	Glu	Ser	Ser	Gly	Tyr
1340						1345					1350			
Arg	Lys	Ile	Pro	Leu	Ser	Thr	Cys	Glu	Gly	Gly	Leu	Lys	Leu	Asp
1355						1360					1365			
Ala	Pro	Ser	Ser	Pro	His	Ala	Cys	Pro	Gly	Lys	Glu	Lys	Glu	Phe
1370						1375					1380			
Lys	Glu	Lys	Tyr	Ser	Val	Ser	Ala	Gly	Pro	Phe	Ala	Phe	Ile	Phe
1385						1390					1395			
Ile	Ser	Ile	Leu	Leu	Ile	Ile	Phe	Phe	Ala	Ala	Trp	Phe	Val	Tyr
1400						1405					1410			
Asp	Arg	Gly	Ile	Arg	Arg	Asn	Gly	Gly	Phe	Ala	Arg	Phe	Gly	Glu
1415						1420					1425			
Ile	Arg	Leu	Gly	Asp	Asp	Gly	Leu	Ile	Glu	Asn	Asn	Asn	Thr	Asp
1430						1435					1440			
Arg	Val	Val	Asn	Asn	Ile	Val	Lys	Ser	Gly	Phe	Tyr	Val	Phe	Ser
1445						1450					1455			
Asn	Ile	Gly	Ser	Leu	Leu	Gln	His	Thr	Lys	Thr	Asn	Ile	Ala	His
1460						1465					1470			
Val	Ile	Ser	Lys	Ile	Arg	Gly	Arg	Phe	Gly	Asn	Arg	Thr	Gly	Pro
1475						1480					1485			
Ser	Tyr	Ser	Ser	Leu	Ile	His	Asp	Gln	Phe	Leu	Asp	Glu	Ala	Asp
1490						1495					1500			
Asp	Leu	Leu	Ala	Gly	His	Asp	Glu	Asp	Ala	Asn	Asp	Leu	Ser	Ser
1505						1510					1515			
Phe	Met	Asp	Gln	Gly	Ser	Asn	Phe	Glu	Ile	Glu	Glu	Asp	Asp	Val
1520						1525					1530			
Pro	Thr	Leu	Glu	Glu	Glu	His	Thr	Ser	Tyr	Thr	Asp	Gln	Pro	Thr
1535						1540					1545			

Thr Thr Asp Val Pro Asp Ala Leu Pro Glu Gly Asn Glu Glu Asn  
 1550 1555 1560

Ile Asp Arg Pro Asp Ser Thr Ala Pro Ser Asn Glu Asn Gln  
 1565 1570 1575

<210> 8  
 <211> 1159  
 <212> PRT  
 <213> Mus musculus

<400> 8

Met Ala His Arg Gly Pro Pro Ser Ala Pro Lys Arg Pro Gly Pro Thr  
 1 5 10 15

Ala Pro Asp Arg Ser Phe Gln Ala Leu Leu Pro Pro Cys Trp Pro Arg  
 20 25 30

Ser Trp Pro Leu Leu Leu Leu Leu Leu Val Leu Val Ala Ala Cys Gly  
 35 40 45

Ala Met Gly Arg Ser Pro Gln Pro Gly Arg Gln Gly Pro Gly Val Gln  
 50 55 60

Ile Thr Arg Leu Leu Pro Ala Gly Arg Thr Glu Ser Gly Asp Arg Lys  
 65 70 75 80

Asp Pro Gln Ala Arg Glu Ser Glu Pro Ser Val Pro Gly Leu Gly Pro  
 85 90 95

Gly Ser Ala Ser Gly Pro Ser Thr Asp Gly Ala Pro Ala Pro Gly Lys  
 100 105 110

Gly Arg Arg Ala Arg Ala Val Pro Val Ala Gly Ala Ala Ser Ala Ser  
 115 120 125

Arg Ala Gln Val Ser Leu Ile Ser Thr Ser Phe Val Leu Lys Gly Asp  
 130 135 140

Ala Thr His Asn Gln Ala Met Val His Trp Thr Gly Glu Asn Ser Ser  
 145 150 155 160

Val Ile Leu Ile Leu Thr Lys Tyr Tyr His Ala Asp Met Gly Lys Val  
 165 170 175

Leu Glu Ser Ser Leu Trp Arg Ser Ser Asp Phe Gly Thr Thr Tyr Thr  
 180 185 190

Lys Leu Thr Leu Gln Pro Gly Val Thr Thr Val Ile Asp Asn Phe Tyr  
 195 200 205

Ile Cys Pro Ala Asn Lys Arg Lys Ile Ile Leu Val Ser Ser Ser Leu  
 210 215 220

Gly Asp Arg Glu Gln Ser Leu Phe Leu Ser Thr Asp Glu Gly Ala Thr  
 225 230 235 240

Phe Gln Lys Tyr Pro Val Pro Phe Leu Val Glu Thr Leu Leu Phe His  
 245 250 255  
 Pro Lys Glu Glu Asp Lys Val Leu Ala Tyr Thr Lys Asp Ser Lys Leu  
 260 265 270  
 Tyr Val Ser Ser Asp Leu Gly Lys Lys Trp Thr Leu Leu Gln Glu Arg  
 275 280 285  
 Val Thr Lys Asp His Val Phe Trp Ala Val Ser Gly Val Asp Asp Asp  
 290 295 300  
 Pro Asn Leu Val His Val Glu Ala Gln Asp Leu Ser Gly Gly Tyr Arg  
 305 310 315 320  
 Tyr Tyr Thr Cys Leu Ile Tyr Asn Cys Ser Ala Gln Pro His Ile Ala  
 325 330 335  
 Pro Phe Ser Gly Pro Ile Asp Arg Gly Ser Leu Thr Val Gln Asp Glu  
 340 345 350  
 Tyr Ile Phe Leu Lys Ala Thr Ser Thr Asn Arg Thr Lys Tyr Tyr Val  
 355 360 365  
 Ser Tyr Arg Arg Ser Asp Phe Val Leu Met Lys Leu Pro Lys Tyr Ala  
 370 375 380  
 Leu Pro Lys Asp Leu Gln Ile Ile Ser Thr Asp Glu Gln Gln Val Phe  
 385 390 395 400  
 Val Ala Val Gln Glu Trp Asn Gln Val Asp Thr Tyr Asn Leu Tyr Gln  
 405 410 415  
 Ser Asp Leu Arg Gly Val Arg Tyr Ser Leu Val Leu Glu Asn Val Arg  
 420 425 430  
 Ser Ser Arg Gln Ala Glu Glu Asn Val Val Ile Asp Ile Leu Glu Val  
 435 440 445  
 Arg Gly Val Lys Gly Val Phe Leu Ala Asn Gln Lys Val Asp Gly Lys  
 450 455 460  
 Val Thr Thr Val Ile Thr Tyr Asn Lys Gly Arg Asp Trp Asp Tyr Leu  
 465 470 475 480  
 Arg Pro Pro Ser Thr Asp Met Asn Gly Lys Pro Thr Asn Cys Gln Pro  
 485 490 495  
 Pro Asp Cys Tyr Leu His Leu His Leu Arg Trp Ala Asp Asn Pro Tyr  
 500 505 510  
 Val Ser Gly Thr Val His Thr Lys Asp Thr Ala Pro Gly Leu Ile Met  
 515 520 525  
 Gly Ala Gly Asn Leu Gly Ser Gln Leu Val Glu Tyr Lys Glu Glu Met  
 530 535 540

Tyr Ile Thr Ser Asp Cys Gly His Thr Trp Arg Gln Val Phe Glu Glu  
 545 550 555 560  
 Glu His His Val Leu Tyr Leu Asp His Gly Gly Val Ile Ala Ala Ile  
 565 570 575  
 Lys Asp Thr Ser Ile Pro Leu Lys Ile Leu Lys Phe Ser Val Asp Glu  
 580 585 590  
 Gly His Thr Trp Ser Thr His Asn Phe Thr Ser Thr Ser Val Phe Val  
 595 600 605  
 Asp Gly Leu Leu Ser Glu Pro Gly Asp Glu Thr Leu Val Met Thr Val  
 610 615 620  
 Phe Gly His Ile Ser Phe Arg Ser Asp Trp Glu Leu Val Lys Val Asp  
 625 630 635 640  
 Phe Arg Pro Ser Phe Pro Arg Gln Cys Gly Glu Asp Asp Tyr Ser Ser  
 645 650 655  
 Trp Asp Leu Thr Asp Leu Gln Gly Asp His Cys Ile Met Gly Gln Gln  
 660 665 670  
 Arg Ser Tyr Arg Lys Arg Lys Ser Thr Ser Trp Cys Val Lys Gly Arg  
 675 680 685  
 Ser Phe Thr Ser Ala Leu Thr Ser Arg Val Cys Lys Cys Arg Asp Ser  
 690 695 700  
 Asp Phe Leu Cys Asp Tyr Gly Phe Glu Arg Ser Ser Ser Ser Glu Ser  
 705 710 715 720  
 Thr Ala Asn Lys Cys Ser Ala Asn Phe Trp Phe Asn Pro Leu Ser Pro  
 725 730 735  
 Pro Glu Asp Cys Val Leu Gly Gln Thr Tyr Thr Ser Ser Leu Gly Tyr  
 740 745 750  
 Arg Lys Val Val Ser Asn Val Cys Glu Gly Gly Val Asp Leu Gln Gln  
 755 760 765  
 Ser Pro Val Gln Leu Gln Cys Pro Leu Gln Ala Pro Arg Gly Leu Gln  
 770 775 780  
 Val Ser Ile Arg Gly Glu Ala Val Ala Val Arg Pro Arg Glu Asp Val  
 785 790 795 800  
 Leu Phe Val Val Arg Gln Glu Gln Gly Asp Val Leu Thr Thr Lys Tyr  
 805 810 815  
 Gln Val Asp Leu Gly Asp Gly Phe Lys Ala Met Tyr Val Asn Leu Thr  
 820 825 830  
 Leu Thr Gly Glu Pro Ile Arg His His Tyr Glu Ser Pro Gly Ile Tyr

835

840

845

Arg Val Ser Val Arg Ala Glu Asn Met Ala Gly His Asp Glu Ala Val  
850 855 860

Leu Phe Val Gln Val Asn Ser Pro Leu Gln Ala Leu Tyr Leu Glu Val  
865 870 875 880

Val Pro Val Ile Gly Val Asn Gln Glu Val Asn Leu Thr Ala Val Leu  
885 890 895

Leu Pro Leu Asn Pro Asn Leu Thr Val Phe Tyr Trp Trp Ile Gly His  
900 905 910

Ser Leu Gln Pro Leu Leu Ser Leu Asp Asn Ser Val Thr Thr Lys Phe  
915 920 925

Thr Asp Ala Gly Asp Val Arg Val Thr Val Gln Ala Ala Cys Gly Asn  
930 935 940

Ser Val Leu Gln Asp Ser Arg Leu Val Arg Val Leu Asp Gln Phe Gln  
945 950 955 960

Val Val Pro Leu Arg Phe Ser Arg Glu Leu Asp Thr Phe Asn Pro Asn  
965 970 975

Thr Pro Glu Trp Arg Glu Asp Val Gly Leu Val Val Thr Arg Leu Leu  
980 985 990

Ser Lys Glu Thr Ser Ile Pro Glu Glu Leu Leu Val Thr Val Val Lys  
995 1000 1005

Pro Gly Leu Pro Thr Ile Ala Asp Leu Tyr Val Leu Leu Pro Leu  
1010 1015 1020

Pro Arg Pro Thr Arg Lys Arg Ser Leu Thr Ser Asp Lys Arg Leu  
1025 1030 1035

Ala Ala Val Gln Gln Ala Leu Asn Ser His Arg Ile Ser Phe Ile  
1040 1045 1050

Leu Arg Gly Gly Leu Arg Ile Leu Val Glu Leu Arg Asp Thr Asp  
1055 1060 1065

Thr Gly Pro Gln Arg Pro Gly Gly Ser Gly Gly Tyr Trp Ala Val  
1070 1075 1080

Val Val Leu Phe Val Ile Gly Leu Phe Ala Val Gly Ala Phe Ile  
1085 1090 1095

Leu Tyr Lys Phe Lys Arg Lys Arg Pro Gly Arg Thr Val Tyr Ala  
1100 1105 1110

Gln Met His Asn Glu Lys Glu Gln Glu Met Thr Ser Pro Val Ser  
1115 1120 1125

His Ser Glu Asp Ala Gln Ser Thr Met Gln Gly Asn His Ser Gly  
 1130 1135 1140

Val Val Leu Ser Ile Asn Ser Arg Glu Met His Ser Tyr Leu Val  
 1145 1150 1155

Gly

<210> 9  
 <211> 1223  
 <212> PRT  
 <213> Homo sapiens

<400> 9

Asn Met Glu Ala Ala Arg Thr Glu Arg Pro Ala Gly Arg Pro Gly Ala  
 1 5 10 15

Pro Leu Val Arg Thr Gly Leu Leu Leu Leu Ser Thr Trp Val Leu Ala  
 20 25 30

Gly Ala Glu Ile Thr Trp Asp Ala Thr Gly Gly Pro Gly Arg Pro Ala  
 35 40 45

Ala Pro Ala Ser Arg Pro Pro Ala Leu Ser Pro Leu Ser Pro Arg Ala  
 50 55 60

Val Ala Ser Gln Trp Pro Glu Glu Leu Ala Ser Ala Arg Arg Ala Ala  
 65 70 75 80

Val Leu Gly Arg Arg Ala Gly Pro Glu Leu Leu Pro Gln Gln Gly Gly  
 85 90 95

Gly Arg Gly Gly Glu Met Gln Val Glu Ala Gly Gly Thr Ser Pro Ala  
 100 105 110

Gly Glu Arg Arg Gly Arg Gly Ile Pro Ala Pro Ala Lys Leu Gly Gly  
 115 120 125

Ala Arg Arg Ser Arg Arg Ala Gln Pro Pro Ile Thr Gln Glu Arg Gly  
 130 135 140

Asp Ala Trp Ala Thr Ala Pro Ala Asp Gly Ser Arg Gly Ser Arg Pro  
 145 150 155 160

Leu Ala Lys Gly Ser Arg Glu Glu Val Lys Ala Pro Arg Ala Gly Gly  
 165 170 175

Ser Ala Ala Glu Asp Leu Arg Leu Pro Ser Thr Ser Phe Ala Leu Thr  
 180 185 190

Gly Asp Ser Ala His Asn Gln Ala Met Val His Trp Ser Gly His Asn  
 195 200 205

Ser Ser Val Ile Leu Ile Leu Thr Lys Leu Tyr Asp Phe Asn Leu Gly  
 210 215 220



Ser Val Thr Glu Ser Ser Leu Trp Arg Ser Thr Asp Tyr Gly Thr Thr  
 225 230 235 240  
 Tyr Glu Lys Leu Asn Asp Lys Val Gly Leu Lys Thr Val Leu Ser Tyr  
 245 250 255  
 Leu Tyr Val Asn Pro Thr Asn Lys Arg Lys Ile Met Leu Leu Ser Asp  
 260 265 270  
 Pro Glu Met Glu Ser Ser Ile Leu Ile Ser Ser Asp Glu Gly Ala Thr  
 275 280 285  
 Tyr Gln Lys Tyr Arg Leu Thr Phe Tyr Ile Gln Ser Leu Leu Phe His  
 290 295 300  
 Pro Lys Gln Glu Asp Trp Val Leu Ala Tyr Ser Leu Asp Gln Lys Leu  
 305 310 315 320  
 Tyr Ser Ser Met Asp Phe Gly Arg Arg Trp Gln Leu Met His Glu Arg  
 325 330 335  
 Ile Thr Pro Asn Arg Phe Tyr Trp Ser Val Ala Gly Leu Asp Lys Glu  
 340 345 350  
 Ala Asp Leu Val His Met Glu Val Arg Thr Thr Asp Gly Tyr Ala His  
 355 360 365  
 Tyr Leu Thr Cys Arg Ile Gln Glu Cys Ala Glu Thr Thr Arg Ser Gly  
 370 375 380  
 Pro Phe Ala Arg Ser Ile Asp Ile Ser Ser Leu Val Val Gln Asp Glu  
 385 390 395 400  
 Tyr Ile Phe Ile Gln Val Thr Thr Ser Gly Arg Ala Ser Tyr Tyr Val  
 405 410 415  
 Ser Tyr Arg Arg Glu Ala Phe Ala Gln Ile Lys Leu Pro Lys Tyr Ser  
 420 425 430  
 Leu Pro Lys Asp Met His Ile Ile Ser Thr Asp Glu Asn Gln Val Phe  
 435 440 445  
 Ala Ala Val Gln Glu Trp Asn Gln Asn Asp Thr Tyr Asn Leu Tyr Ile  
 450 455 460  
 Ser Asp Thr Arg Gly Ile Tyr Phe Thr Leu Ala Met Glu Asn Ile Lys  
 465 470 475 480  
 Ser Ser Arg Gly Leu Met Gly Asn Ile Ile Ile Glu Leu Tyr Glu Val  
 485 490 495  
 Ala Gly Ile Lys Gly Ile Phe Leu Ala Asn Lys Lys Val Asp Asp Gln  
 500 505 510  
 Val Lys Thr Tyr Ile Thr Tyr Asn Lys Gly Arg Asp Trp Arg Leu Leu  
 515 520 525

Gln Ala Pro Asp Val Asp Leu Arg Gly Ser Pro Val His Cys Leu Leu  
 530 535 540  
 Pro Phe Cys Ser Leu His Leu His Leu Gln Leu Ser Glu Asn Pro Tyr  
 545 550 555 560  
 Ser Ser Gly Arg Ile Ser Ser Lys Glu Thr Ala Pro Gly Leu Val Val  
 565 570 575  
 Ala Thr Gly Asn Ile Gly Pro Glu Leu Ser Tyr Thr Asp Ile Gly Val  
 580 585 590  
 Phe Ile Ser Ser Asp Gly Gly Asn Thr Trp Arg Gln Ile Phe Asp Glu  
 595 600 605  
 Glu Tyr Asn Val Trp Phe Leu Asp Trp Gly Gly Ala Leu Val Ala Met  
 610 615 620  
 Lys His Thr Pro Leu Pro Val Arg His Leu Trp Val Ser Phe Asp Glu  
 625 630 635 640  
 Gly His Ser Trp Asp Lys Tyr Gly Phe Thr Ser Val Pro Leu Phe Val  
 645 650 655  
 Asp Gly Ala Leu Val Glu Ala Gly Met Glu Thr His Ile Met Thr Val  
 660 665 670  
 Phe Gly His Phe Ser Leu Arg Ser Glu Trp Gln Leu Val Lys Val Asp  
 675 680 685  
 Tyr Lys Ser Ile Phe Ser Arg His Cys Thr Lys Glu Asp Tyr Gln Thr  
 690 695 700  
 Trp His Leu Leu Asn Gln Gly Glu Pro Cys Val Met Gly Glu Arg Lys  
 705 710 715 720  
 Ile Phe Lys Lys Arg Lys Pro Gly Ala Gln Cys Ala Leu Gly Arg Asp  
 725 730 735  
 His Ser Gly Ser Val Val Ser Glu Pro Cys Val Cys Ala Asn Trp Asp  
 740 745 750  
 Phe Glu Cys Asp Tyr Gly Tyr Glu Arg His Gly Glu Ser Gln Cys Val  
 755 760 765  
 Pro Ala Phe Trp Tyr Asn Pro Ala Ser Pro Ser Lys Asp Cys Ser Leu  
 770 775 780  
 Gly Gln Ser Tyr Leu Asn Ser Thr Gly Tyr Arg Arg Ile Val Ser Asn  
 785 790 795 800  
 Asn Cys Thr Asp Gly Leu Arg Glu Lys Tyr Thr Ala Lys Ala Gln Met  
 805 810 815  
 Cys Pro Gly Lys Ala Pro Arg Gly Leu His Val Val Thr Thr Asp Gly  
 820 825 830

Arg Leu Val Ala Glu Gln Gly His Asn Ala Thr Phe Ile Ile Leu Met  
 835 840 845  
 Glu Glu Gly Asp Leu Gln Arg Thr Asn Ile Gln Leu Asp Phe Gly Asp  
 850 855 860  
 Gly Ile Ala Val Ser Tyr Ala Asn Phe Ser Pro Ile Glu Asp Gly Ile  
 865 870 875 880  
 Lys His Val Tyr Lys Ser Ala Gly Ile Phe Gln Val Thr Ala Tyr Ala  
 885 890 895  
 Glu Asn Asn Leu Gly Ser Asp Thr Ala Val Leu Phe Leu His Val Val  
 900 905 910  
 Cys Pro Val Glu His Val His Leu Arg Val Pro Phe Val Ala Ile Arg  
 915 920 925  
 Asn Lys Glu Val Asn Ile Ser Ala Val Val Trp Pro Ser Gln Leu Gly  
 930 935 940  
 Thr Leu Thr Tyr Phe Trp Trp Phe Gly Asn Ser Thr Lys Pro Leu Ile  
 945 950 955 960  
 Thr Leu Asp Ser Ser Ile Ser Phe Thr Phe Leu Ala Glu Gly Thr Asp  
 965 970 975  
 Thr Ile Thr Val Gln Val Ala Ala Gly Asn Ala Leu Ile Gln Asp Thr  
 980 985 990  
 Lys Glu Ile Ala Val His Glu Tyr Phe Gln Ser Gln Leu Leu Ser Phe  
 995 1000 1005  
 Ser Pro Asn Leu Asp Tyr His Asn Pro Asp Ile Pro Glu Trp Arg  
 1010 1015 1020  
 Lys Asp Ile Gly Asn Val Ile Lys Arg Ala Leu Val Lys Val Thr  
 1025 1030 1035  
 Ser Val Pro Glu Asp Gln Ile Leu Ile Ala Val Phe Pro Gly Leu  
 1040 1045 1050  
 Pro Thr Ser Ala Glu Leu Phe Ile Leu Pro Pro Lys Asn Leu Thr  
 1055 1060 1065  
 Glu Arg Arg Lys Gly Asn Glu Gly Asp Leu Glu Gln Ile Val Glu  
 1070 1075 1080  
 Thr Leu Phe Asn Ala Leu Asn Gln Asn Leu Val Gln Phe Glu Leu  
 1085 1090 1095  
 Lys Pro Gly Val Gln Val Ile Val Tyr Val Thr Gln Leu Thr Leu  
 1100 1105 1110  
 Ala Pro Leu Val Asp Ser Ser Ala Gly His Ser Ser Ser Ala Met

1115

Leu Met Leu Leu Ser Val Val Phe Val Gly Leu Ala Val Phe Leu  
1130 1135 1140

Ile Tyr Lys Phe Lys Arg Lys Ile Pro Trp Ile Asn Ile Tyr Ala  
1145 1150 1155

Gln Val Gln His Asp Lys Glu Gln Glu Met Ile Gly Ser Val Ser  
1160 1165 1170

Gln Ser Glu Asn Ala Pro Lys Ile Thr Leu Ser Asp Phe Thr Glu  
1175 1180 1185

Pro Glu Glu Leu Leu Asp Lys Glu Leu Asp Thr Arg Val Ile Gly  
1190 1195 1200

Gly Ile Ala Thr Ile Ala Asn Ser Glu Ser Thr Lys Glu Ile Pro  
1205 1210 1215

Asn Cys Thr Ser Val  
1220

<210> 10  
<211> 1219  
<212> PRT  
<213> Mus musculus  
<400> 10

Met Glu Ala Ala Gly Thr Glu Arg Pro Ala Gly Trp Pro Gly Ala Pro  
1 5 10 15

Leu Ala Arg Thr Gly Leu Leu Leu Leu Ser Thr Trp Val Leu Ala Gly  
20 25 30

Ala Glu Ile Thr Trp Gly Ala Thr Gly Gly Pro Gly Arg Leu Val Ser  
35 40 45

Pro Ala Ser Arg Pro Pro Val Leu Pro Pro Leu Leu Pro Arg Ala Ala  
50 55 60

Glu Asn Arg Trp Pro Glu Glu Leu Ala Ser Ala Arg Arg Ala Ala Ala  
65 70 75 80

Pro Arg Arg Arg Ser Arg Leu Glu Pro Leu Ser Gln Ala Ser Arg Gly  
85 90 95

Glu Ile Arg Thr Glu Ala Ala Gly Met Ser Pro Glu Gly Ala Arg Trp  
100 105 110

Val Pro Gly Ile Pro Ser Pro Ser Gln Ala Gly Ser Ala Arg Arg Thr  
115 120 125

Arg Arg Ala Gln Pro Pro Ser Pro Leu Glu Arg Gly Asp Ser Trp Ala  
130 135 140

Thr Ala Leu Ala Asp Gly Ala Lys Gly Ser Arg Pro His Thr Lys Gly  
Page 44

145 150 155 160

Ser Arg Glu Glu Val Arg Ala Thr Arg Thr Gly Gly Ala Ser Thr Glu  
165 170 175

Glu Leu Arg Leu Pro Ser Thr Ser Phe Ala Leu Thr Gly Asp Ser Ala  
180 185 190

His Asn Gln Ala Met Val His Trp Ser Gly His Asn Ser Ser Val Ile  
195 200 205

Leu Ile Leu Thr Lys Leu Tyr Asp Phe Asn Leu Gly Ser Val Thr Glu  
210 215 220

Ser Ser Leu Trp Arg Ser Val Asp Tyr Gly Ala Thr Tyr Glu Lys Leu  
225 230 235 240

Asn Asp Lys Val Gly Leu Lys Thr Val Leu Ser Tyr Leu Tyr Val Asn  
245 250 255

Pro Thr Asn Lys Arg Lys Ile Met Leu Leu Ser Asp Pro Glu Met Glu  
260 265 270

Ser Ser Val Leu Ile Ser Ser Asp Glu Gly Ala Thr Tyr Gln Lys Tyr  
275 280 285

Arg Leu Thr Phe Tyr Ile Gln Ser Leu Leu Phe His Pro Lys Gln Glu  
290 295 300

Asp Trp Val Leu Ala Tyr Ser Leu Asp Gln Lys Leu Tyr Ser Ser Met  
305 310 315 320

Asp Phe Gly Arg Arg Trp Gln Leu Met His Glu Arg Ile Thr Pro Asn  
325 330 335

Arg Phe Tyr Trp Ser Val Ser Gly Leu Asp Lys Glu Ala Asp Leu Val  
340 345 350

His Met Glu Val Arg Thr Ala Asp Gly Tyr Ala His Tyr Leu Thr Cys  
355 360 365

Arg Ile Gln Glu Cys Ala Glu Thr Thr Arg Ser Gly Pro Phe Ala Arg  
370 375 380

Ser Ile Asp Ile Ser Ser Leu Val Val Gln Asp Glu Tyr Ile Phe Ile  
385 390 395 400

Gln Val Thr Ile Gly Gly Arg Ala Ser Tyr Tyr Val Ser Tyr Arg Arg  
405 410 415

Glu Ala Phe Ala Gln Ile Lys Leu Pro Lys Tyr Ser Leu Pro Lys Asp  
420 425 430

Met His Ile Ile Ser Thr Asp Glu Asn Gln Val Phe Ala Ala Val Gln  
435 440 445

Glu Trp Asn Gln Asn Asp Thr Tyr Asn Leu Tyr Ile Ser Asp Thr Arg  
 450 455 460  
 Gly Ile Tyr Phe Thr Leu Ala Met Glu Asn Ile Lys Ser Ser Arg Gly  
 465 470 475 480  
 Leu Met Gly Asn Ile Ile Ile Glu Leu Tyr Glu Val Ala Gly Ile Lys  
 485 490 495  
 Gly Ile Phe Leu Ala Asn Lys Lys Val Asp Asp Gln Val Lys Thr Tyr  
 500 505 510  
 Ile Thr Tyr Asn Lys Gly Arg Asp Trp Arg Leu Leu Gln Ala Pro Asp  
 515 520 525  
 Val Asp Leu Arg Gly Ser Pro Val His Cys Leu Leu Pro Phe Cys Ser  
 530 535 540  
 Leu His Leu His Leu Gln Leu Ser Glu Asn Pro Tyr Ser Ser Gly Arg  
 545 550 555 560  
 Ile Ser Ser Lys Asp Thr Ala Pro Gly Leu Val Val Ala Thr Gly Asn  
 565 570 575  
 Ile Gly Ser Glu Leu Ser Tyr Thr Asp Ile Gly Val Phe Ile Ser Ser  
 580 585 590  
 Asp Gly Gly Asn Thr Trp Arg Gln Ile Phe Asp Glu Glu Tyr Asn Val  
 595 600 605  
 Trp Phe Leu Asp Trp Gly Gly Ala Leu Val Ala Met Lys His Thr Pro  
 610 615 620  
 Leu Pro Val Arg His Leu Trp Val Ser Phe Asp Glu Gly His Ser Trp  
 625 630 635 640  
 Asp Lys Tyr Gly Phe Thr Leu Leu Pro Leu Phe Val Asp Gly Ala Leu  
 645 650 655  
 Val Glu Ala Gly Val Glu Thr His Ile Met Thr Val Phe Gly His Phe  
 660 665 670  
 Ser Leu Arg Ser Glu Trp Gln Leu Val Lys Val Asp Tyr Lys Ser Ile  
 675 680 685  
 Phe Ser Arg Arg Cys Thr Lys Glu Asp Phe Glu Thr Trp His Leu Leu  
 690 695 700  
 Asn Gln Gly Glu Pro Cys Val Met Gly Glu Arg Lys Ile Phe Lys Lys  
 705 710 715 720  
 Arg Lys Pro Gly Ala Gln Cys Ala Leu Gly Arg Glu Tyr Ser Gly Ser  
 725 730 735  
 Val Val Ser Glu Pro Cys Val Cys Ala Asp Trp Asp Phe Glu Cys Asp  
 740 745 750

Tyr Gly Tyr Glu Arg His Gly Glu Ser Gln Cys Val Pro Ala Phe Trp  
 755 760 765  
 Tyr Asn Pro Ala Ser Pro Ser Lys Asp Cys Ser Leu Gly Gln Ser Tyr  
 770 775 780  
 Leu Asn Ser Thr Gly Tyr Arg Arg Ile Val Ser Asn Asn Cys Thr Asp  
 785 790 795 800  
 Gly Leu Arg Asp Lys Tyr Ser Ala Lys Thr Gln Leu Cys Pro Gly Lys  
 805 810 815  
 Ala Pro Arg Gly Leu His Val Val Thr Thr Asp Gly Arg Leu Val Ala  
 820 825 830  
 Glu Gln Gly His Asn Ala Thr Phe Ile Ile Leu Met Glu Glu Gly Asp  
 835 840 845  
 Leu Gln Arg Thr Asn Ile Gln Leu Asp Phe Gly Asp Gly Val Ala Val  
 850 855 860  
 Ser Tyr Ala Asn Phe Ser Pro Ile Glu Asp Gly Ile Arg His Val Tyr  
 865 870 875 880  
 Lys Ser Ala Gly Ile Phe Gln Val Thr Ala Tyr Ala Glu Asn Asn Leu  
 885 890 895  
 Gly Ser Asp Thr Ala Phe Leu Phe Leu His Val Val Cys Pro Val Glu  
 900 905 910  
 His Val His Leu Arg Val Pro Phe Val Ala Ile Arg Asn Lys Asp Val  
 915 920 925  
 Asn Ile Ser Ala Val Val Trp Pro Ser Gln Leu Gly Thr Leu Thr Tyr  
 930 935 940  
 Phe Trp Trp Phe Gly Asn Ser Thr Lys Pro Leu Ile Thr Leu Asp Ser  
 945 950 955 960  
 Ser Ile Ser Phe Thr Phe Leu Ala Glu Gly Thr Asn Thr Ile Thr Val  
 965 970 975  
 Gln Val Ala Ala Gly Asn Ala Leu Ile Gln Asp Thr Lys Glu Ile Ala  
 980 985 990  
 Val His Glu Tyr Phe Gln Ser Gln Leu Leu Ser Phe Ser Pro Asn Leu  
 995 1000 1005  
 Asp Tyr His Asn Pro Asp Ile Pro Glu Trp Arg Gln Asp Ile Gly  
 1010 1015 1020  
 Asn Val Ile Lys Arg Ala Leu Ile Lys Val Thr Ser Val Pro Glu  
 1025 1030 1035  
 Asp Gln Ile Leu Val Ala Val Phe Pro Gly Leu Pro Thr Ser Ala  
 1040 1045 1050

Glu Leu Phe Ile Leu Pro Pro Lys Asn Leu Thr Glu Arg Arg Lys  
 1055 1060 1065  
 Gly His Glu Gly Asp Leu Glu Gln Ile Val Glu Thr Leu Phe Asn  
 1070 1075 1080  
 Ala Leu Asn Gln Asn Leu Val Gln Phe Glu Leu Lys Pro Gly Val  
 1085 1090 1095  
 Gln Val Ile Val Tyr Val Thr Gln Leu Thr Leu Ala Pro Leu Val  
 1100 1105 1110  
 Asp Ser Ser Ala Gly His Ser Ser Ser Ala Met Leu Met Leu Leu  
 1115 1120 1125  
 Ser Val Val Phe Val Gly Leu Ala Val Phe Leu Ile Tyr Lys Phe  
 1130 1135 1140  
 Lys Arg Lys Ile Pro Trp Ile Asn Ile Tyr Ala Gln Val Gln His  
 1145 1150 1155  
 Asp Lys Glu Gln Glu Met Ile Gly Ser Val Ser Gln Ser Glu Asn  
 1160 1165 1170  
 Ala Pro Lys Ile Thr Leu Ser Asp Phe Thr Glu Pro Glu Glu Leu  
 1175 1180 1185  
 Leu Asp Lys Glu Leu Asp Thr Arg Val Ile Gly Ser Ile Ala Thr  
 1190 1195 1200  
 Ile Ala Ser Ser Glu Ser Thr Lys Glu Ile Pro Asn Cys Thr Ser  
 1205 1210 1215

Val

<210> 11  
 <211> 1147  
 <212> PRT  
 <213> Mus musculus

<400> 11

Met Gly Lys Val Gly Ala Gly Asp Gly Tyr Ser Ala Gly Leu Ser Ala  
 1 5 10 15

Leu Leu Ala Gly Ala Gly Leu Leu Met Leu Leu Ala Pro Gly Val Cys  
 20 25 30

Ser Ser Leu Ser Cys Cys Pro Pro Gln His Pro Ser Ser Thr Pro Arg  
 35 40 45

Arg Thr Leu Thr Pro Arg Gly Phe Pro His Pro Gly Pro Leu Gly Arg  
 50 55 60

Ala Pro Ala Thr Pro Pro Pro Leu Phe Met Arg Pro Leu Phe Ala Val  
 65 70 75 80



Ala Pro Gly Asp Arg Ala Leu Phe Leu Glu Arg Ala Gly Gly Ser Arg  
85 90 95

Val Ser Val Ala Thr Ala Ala Arg Ser Gly Arg Arg Arg Arg Ser Gly  
100 105 110

Thr Glu Pro Glu Lys Ile Glu Pro Gly Glu Gly Ala Ser Arg Ser Arg  
115 120 125

Arg Asp Met Leu Lys Asp Gly Gly Gln Gln Gly Leu Gly Thr Gly Ala  
130 135 140

Arg Asp Pro Gly Lys Ala Thr Arg Phe Arg Met Glu Glu Leu Arg Leu  
145 150 155 160

Thr Ser Thr Thr Phe Ala Leu Thr Gly Asp Ser Ala His Asn Gln Ala  
165 170 175

Met Val His Trp Ser Gly His Asn Ser Ser Val Ile Leu Ile Leu Thr  
180 185 190

Lys Leu Tyr Asp Tyr Asn Leu Gly Ser Ile Thr Glu Ser Ser Leu Trp  
195 200 205

Arg Ser Thr Asp Tyr Gly Thr Thr Tyr Glu Lys Leu Asn Asp Lys Val  
210 215 220

Gly Leu Lys Thr Ile Leu Ser Tyr Leu Tyr Val Cys Pro Thr Asn Lys  
225 230 235 240

Cys Lys Ile Met Leu Leu Thr Asp Pro Glu Ile Glu Ser Ser Leu Leu  
245 250 255

Ile Ser Ser Asp Glu Gly Ala Thr Tyr Gln Lys Tyr Arg Leu Asn Phe  
260 265 270

Tyr Leu Gln Ser Leu Leu Phe His Pro Lys Gln Glu Asp Trp Ile Leu  
275 280 285

Ala Tyr Ser Gln Asp Gln Lys Leu Tyr Ser Ser Ala Glu Phe Gly Arg  
290 295 300

Arg Trp Gln Leu Ile Gln Glu Ser Val Val Pro Asn Arg Phe Tyr Trp  
305 310 315 320

Ser Val Met Gly Ser Ser Lys Glu Pro Asp Leu Val His Leu Glu Ala  
325 330 335

Arg Thr Val Asp Gly His Ser Ile Tyr Leu Thr Cys Arg Met Gln Asn  
340 345 350

Cys Thr Glu Ala Asn Arg Asn Lys Pro Phe Pro Gly Tyr Ile Asp Pro  
355 360 365

Asp Ser Leu Ile Val Gln Asp Asp Tyr Val Phe Val Gln Leu Thr Ser

370

375

380

Gly Gly Arg Pro His Tyr Tyr Val Ser Tyr Arg Arg Ser Pro Phe Ala  
 385 390 395 400  
 Gln Met Lys Leu Pro Lys Tyr Ala Leu Pro Lys Asp Met His Val Ile  
 405 410 415  
 Ser Thr Asp Glu Asn Gln Val Phe Ala Ala Val Gln Glu Trp Asn Gln  
 420 425 430  
 Asn Asp Thr Tyr Asn Leu Tyr Ile Ser Asp Thr Arg Gly Val Tyr Phe  
 435 440 445  
 Thr Leu Ala Leu Glu Asn Val Arg Ser Ser Arg Gly Pro Glu Gly Asn  
 450 455 460  
 Val Met Ile Asp Leu Tyr Glu Val Ala Gly Ile Lys Gly Met Phe Leu  
 465 470 475 480  
 Ala Asn Lys Lys Ile Asp Asn Gln Val Lys Thr Phe Ile Thr Tyr Asn  
 485 490 495  
 Lys Gly Arg Asp Trp Arg Leu Leu Gln Ala Pro Asp Ala Asp Leu Arg  
 500 505 510  
 Gly Asp Pro Val His Cys Leu Leu Pro Tyr Cys Ser Leu His Leu His  
 515 520 525  
 Leu Lys Val Ser Glu Asn Pro Tyr Thr Ser Gly Ile Ile Ala Ser Arg  
 530 535 540  
 Asp Thr Ala Pro Ser Ile Ile Val Ala Ser Gly Asn Ile Gly Ser Glu  
 545 550 555 560  
 Leu Ser Asp Ser Asp Ile Ser Met Phe Val Ser Ser Asp Ala Gly Asn  
 565 570 575  
 Thr Trp Arg Gln Ile Phe Glu Glu Glu His Ser Ile Leu Tyr Leu Asp  
 580 585 590  
 Gln Gly Gly Val Leu Val Ala Met Lys His Thr Ser Leu Pro Ile Arg  
 595 600 605  
 His Leu Trp Leu Ser Phe Asp Glu Gly Arg Ser Trp Ser Lys Tyr Ser  
 610 615 620  
 Phe Thr Ser Ile Pro Leu Phe Val Asp Gly Val Leu Gly Glu Pro Gly  
 625 630 635 640  
 Glu Glu Thr Leu Ile Met Thr Val Phe Gly His Phe Ser His Arg Ser  
 645 650 655  
 Glu Trp Gln Leu Val Lys Val Asp Tyr Lys Ser Ile Phe Asp Arg Arg  
 660 665 670

Cys Ala Glu Glu Asp Tyr Arg Pro Trp Gln Leu His Ser Gln Gly Glu  
675 680 685

Ala Cys Ile Met Gly Ala Lys Arg Ile Tyr Lys Lys Arg Lys Ser Glu  
690 695 700

Arg Lys Cys Met Gln Lys Tyr Ala Gly Ala Met Glu Ser Glu Pro Cys  
705 710 715 720

Val Cys Thr Glu Ala Asp Phe Asp Cys Asp Tyr Gly Tyr Glu Arg His  
725 730 735

Ser Asn Gly Gln Cys Leu Pro Ala Phe Trp Phe Asn Pro Ser Ser Leu  
740 745 750

Ser Lys Asp Cys Ser Leu Gly Gln Ser Tyr Leu Asn Ser Ala Gly Tyr  
755 760 765

Arg Lys Val Val Ser Asn Asn Cys Thr Asp Gly Val Arg Glu Gln Tyr  
770 775 780

Thr Ala Lys Pro Gln Lys Cys Pro Gly Lys Ala Pro Arg Gly Leu Arg  
785 790 795 800

Ile Val Thr Ala Asp Gly Lys Leu Thr Ala Glu Gln Gly His Asn Val  
805 810 815

Thr Leu Met Val Gln Leu Glu Glu Gly Asp Val Gln Arg Thr Leu Ile  
820 825 830

Gln Val Asp Phe Gly Asp Gly Ile Ala Val Ser Tyr Val Asn Leu Ser  
835 840 845

Ser Met Glu Asp Gly Ile Lys His Val Tyr Gln Asn Val Gly Ile Phe  
850 855 860

Arg Val Thr Val Gln Val Asp Asn Ser Leu Gly Ser Asp Ser Ala Val  
865 870 875 880

Leu Tyr Leu His Val Thr Cys Pro Leu Glu His Val His Leu Ser Leu  
885 890 895

Pro Phe Val Thr Thr Lys Asn Lys Glu Val Asn Ala Thr Ala Val Leu  
900 905 910

Trp Pro Ser Gln Val Gly Thr Leu Thr Tyr Val Trp Trp Tyr Gly Asn  
915 920 925

Asn Thr Glu Pro Leu Ile Thr Leu Glu Gly Ser Ile Ser Phe Lys Phe  
930 935 940

Thr Ser Glu Gly Met Asn Thr Ile Thr Val Gln Val Ser Ala Gly Asn  
945 950 955 960

Ala Ile Leu Gln Asp Thr Lys Thr Ile Ala Val Tyr Glu Glu Phe Arg  
965 970 975

Ser Leu Arg Leu Ala Phe Ser Pro Asn Leu Asp Asp Tyr Asn Pro Asp  
 980 985 990

Ile Pro Glu Trp Arg Arg Asp Ile Ser Arg Val Ile Lys Lys Ser Leu  
 995 1000 1005

Val Glu Ala Thr Gly Ile Pro Ser Gln His Ile Leu Val Ala Val  
 1010 1015 1020

Leu Pro Gly Leu Pro Thr Ala Ala Glu Leu Phe Val Leu Pro Tyr  
 1025 1030 1035

Gln Asp Gly Thr Arg Glu Asn Lys Arg Ser Pro Glu Asp Leu Glu  
 1040 1045 1050

Gln Ile Ser Glu Val Leu Ile His Lys Leu Asn Gln Asn Leu Val  
 1055 1060 1065

His Phe Glu Leu Lys Pro Gly Val Gln Val Leu Val His Ala Ala  
 1070 1075 1080

His Leu Thr Ala Ala Pro Leu Val Asp Leu Thr Pro Thr His Ser  
 1085 1090 1095

Gly Ser Ala Met Leu Met Leu Leu Ser Val Val Phe Val Gly Leu  
 1100 1105 1110

Ala Val Phe Val Ile Tyr Lys Phe Lys Arg Cys Val Phe Leu Leu  
 1115 1120 1125

Leu Pro Ser Tyr Pro Arg Pro Pro Pro Pro Ser Ser Phe Cys Gln  
 1130 1135 1140

Val Gln Lys Gln  
 1145

<210> 12  
 <211> 1167  
 <212> PRT  
 <213> Mus musculus

<400> 12

Met Gly Lys Val Gly Ala Gly Asp Gly Ser Ser Ala Gly Leu Ser Ala  
 1 5 10 15

Leu Leu Ala Gly Ala Gly Leu Leu Met Leu Leu Ala Pro Gly Val Cys  
 20 25 30

Ser Ser Leu Ser Cys Cys Pro Pro Gln His Pro Ser Ser Thr Pro Arg  
 35 40 45

Arg Thr Leu Thr Pro Arg Gly Phe Pro His Pro Gly Pro Leu Gly Arg  
 50 55 60

Ala Pro Ala Thr Pro Pro Pro Leu Phe Met Arg Pro Leu Phe Ala Val  
 65 70 75 80

Ala Pro Gly Asp Arg Ala Leu Phe Leu Glu Arg Ala Gly Gly Ser Arg  
85 90 95

Val Ser Val Ala Thr Ala Ala Arg Ser Gly Arg Arg Arg Arg Ser Gly  
100 105 110

Thr Glu Pro Glu Lys Ile Glu Pro Gly Glu Gly Ala Ser Arg Ser Arg  
115 120 125

Arg Asp Met Leu Lys Asp Gly Gly Gln Gln Gly Leu Gly Thr Gly Ala  
130 135 140

Arg Asp Pro Gly Lys Ala Thr Arg Phe Arg Met Glu Glu Leu Arg Leu  
145 150 155 160

Thr Ser Thr Thr Phe Ala Leu Thr Gly Asp Ser Ala His Asn Gln Ala  
165 170 175

Met Val His Trp Ser Gly His Asn Ser Ser Val Ile Leu Ile Leu Thr  
180 185 190

Lys Leu Tyr Asp Tyr Asn Leu Gly Ser Ile Thr Glu Ser Ser Leu Trp  
195 200 205

Arg Ser Thr Asp Tyr Gly Thr Thr Tyr Glu Lys Leu Asn Asp Lys Val  
210 215 220

Gly Leu Lys Thr Ile Leu Ser Tyr Leu Tyr Val Cys Pro Thr Asn Lys  
225 230 235 240

Cys Lys Ile Met Leu Leu Thr Asp Pro Glu Ile Glu Ser Ser Leu Leu  
245 250 255

Ile Ser Ser Asp Glu Gly Ala Thr Tyr Gln Lys Tyr Arg Leu Asn Phe  
260 265 270

Tyr Leu Gln Ser Leu Leu Phe His Pro Lys Gln Glu Asp Trp Ile Leu  
275 280 285

Ala Tyr Ser Gln Asp Gln Lys Leu Tyr Ser Ser Ala Glu Phe Gly Arg  
290 295 300

Arg Trp Gln Leu Ile Gln Glu Ser Val Val Pro Asn Arg Phe Tyr Trp  
305 310 315 320

Ser Val Met Gly Ser Ser Lys Glu Pro Asp Leu Val His Leu Glu Ala  
325 330 335

Arg Thr Val Asp Gly His Ser Ile Tyr Leu Thr Cys Arg Met Gln Asn  
340 345 350

Cys Thr Glu Ala Asn Arg Asn Lys Pro Phe Pro Gly Tyr Ile Asp Pro  
355 360 365

Asp Ser Leu Ile Val Gln Asp Asp Tyr Val Phe Val Gln Leu Thr Ser  
370 375 380

Gly Gly Arg Pro His Tyr Tyr Val Ser Tyr Arg Arg Ser Pro Phe Ala  
 385 390 395 400  
 Gln Met Lys Leu Pro Lys Tyr Ala Leu Pro Lys Asp Met His Val Ile  
 405 410 415  
 Ser Thr Asp Glu Asn Gln Val Phe Ala Ala Val Gln Glu Trp Asn Gln  
 420 425 430  
 Asn Asp Thr Tyr Asn Leu Tyr Ile Ser Asp Thr Arg Gly Val Tyr Phe  
 435 440 445  
 Thr Leu Ala Leu Glu Asn Val Arg Ser Ser Arg Gly Pro Glu Gly Asn  
 450 455 460  
 Val Met Ile Asp Leu Tyr Glu Val Ala Gly Ile Lys Gly Met Phe Leu  
 465 470 475 480  
 Ala Asn Lys Lys Ile Asp Asn Gln Val Lys Thr Phe Ile Thr Tyr Asn  
 485 490 495  
 Lys Gly Arg Asp Trp Arg Leu Leu Gln Ala Pro Asp Ala Asp Leu Arg  
 500 505 510  
 Gly Asp Pro Val His Cys Leu Leu Pro Tyr Cys Ser Leu His Leu His  
 515 520 525  
 Leu Lys Val Ser Glu Asn Pro Tyr Thr Ser Gly Ile Ile Ala Ser Arg  
 530 535 540  
 Asp Thr Ala Pro Ser Ile Ile Val Ala Ser Gly Asn Ile Gly Ser Glu  
 545 550 555 560  
 Leu Ser Asp Ser Asp Ile Ser Met Phe Val Ser Ser Asp Ala Gly Asn  
 565 570 575  
 Thr Trp Arg Gln Ile Phe Glu Glu Glu His Ser Ile Leu Tyr Leu Asp  
 580 585 590  
 Gln Gly Gly Val Leu Val Ala Met Lys His Thr Ser Leu Pro Ile Arg  
 595 600 605  
 His Leu Trp Leu Ser Phe Asp Glu Gly Arg Ser Trp Ser Lys Tyr Ser  
 610 615 620  
 Phe Thr Ser Ile Pro Leu Phe Val Asp Gly Val Leu Gly Glu Pro Gly  
 625 630 635 640  
 Glu Glu Thr Leu Ile Met Thr Val Phe Gly His Phe Ser His Arg Ser  
 645 650 655  
 Glu Trp Gln Leu Val Lys Val Asp Tyr Lys Ser Ile Phe Asp Arg Arg  
 660 665 670  
 Cys Ala Glu Glu Asp Tyr Arg Pro Trp Gln Leu His Ser Gln Gly Glu

675

Ala Cys Ile Met Gly Ala Lys Arg Ile Tyr Lys Lys Arg Lys Ser Glu  
690 695 700

Arg Lys Cys Met Gln Lys Tyr Ala Gly Ala Met Glu Ser Glu Pro Cys  
705 710 715 720

Val Cys Thr Glu Ala Asp Phe Asp Cys Asp Tyr Gly Tyr Glu Arg His  
725 730 735

Ser Asn Gly Gln Cys Leu Pro Ala Phe Trp Phe Asn Pro Ser Ser Leu  
740 745 750

Ser Lys Asp Cys Ser Leu Gly Gln Ser Tyr Leu Asn Ser Ala Gly Tyr  
755 760 765

Arg Lys Val Val Ser Asn Asn Cys Thr Asp Gly Val Arg Glu Gln Tyr  
770 775 780

Thr Ala Lys Pro Gln Lys Cys Pro Gly Lys Ala Pro Arg Gly Leu Arg  
785 790 795 800

Ile Val Thr Ala Asp Gly Lys Leu Thr Ala Glu Gln Gly His Asn Val  
805 810 815

Thr Leu Met Val Gln Leu Glu Glu Gly Asp Val Gln Arg Thr Leu Ile  
820 825 830

Gln Val Asp Phe Gly Asp Gly Ile Ala Val Ser Tyr Val Asn Leu Ser  
835 840 845

Ser Met Glu Asp Gly Ile Lys His Val Tyr Gln Asn Val Gly Ile Phe  
850 855 860

Arg Val Thr Val Gln Val Asp Asn Ser Leu Gly Ser Asp Ser Ala Val  
865 870 875 880

Leu Tyr Leu His Val Thr Cys Pro Leu Glu His Val His Leu Ser Leu  
885 890 895

Pro Phe Val Thr Thr Lys Asn Lys Glu Val Asn Ala Thr Ala Val Leu  
900 905 910

Trp Pro Ser Gln Val Gly Thr Leu Thr Tyr Val Trp Trp Tyr Gly Asn  
915 920 925

Asn Thr Glu Pro Leu Ile Thr Leu Glu Gly Ser Ile Ser Phe Lys Phe  
930 935 940

Thr Ser Glu Gly Met Asn Thr Ile Thr Val Gln Val Ser Ala Gly Asn  
945 950 955 960

Ala Ile Leu Gln Asp Thr Lys Thr Ile Ala Val Tyr Glu Glu Phe Arg  
965 970 975

Ser Leu Arg Leu Ala Phe Ser Pro Asn Leu Asp Asp Tyr Asn Pro Asp  
 980 985 990

Ile Pro Glu Trp Arg Arg Asp Ile Ser Arg Val Ile Lys Lys Ser Leu  
 995 1000 1005

Val Glu Ala Thr Gly Ile Pro Ser Gln His Ile Leu Val Ala Val  
 1010 1015 1020

Leu Pro Gly Leu Pro Thr Ala Ala Glu Leu Phe Val Leu Pro Tyr  
 1025 1030 1035

Gln Asp Gly Thr Arg Glu Asn Lys Arg Ser Pro Glu Asp Leu Glu  
 1040 1045 1050

Gln Ile Ser Glu Val Leu Ile His Lys Leu Asn Gln Asn Leu Val  
 1055 1060 1065

His Phe Glu Leu Lys Pro Gly Val Gln Val Leu Val His Ala Ala  
 1070 1075 1080

His Leu Thr Ala Ala Pro Leu Val Asp Leu Thr Pro Thr His Ser  
 1085 1090 1095

Gly Ser Ala Met Leu Met Leu Leu Ser Val Val Phe Val Gly Leu  
 1100 1105 1110

Ala Val Phe Val Ile Tyr Lys Phe Lys Arg Arg Val Ala Leu Pro  
 1115 1120 1125

Ser Pro Pro Ser Pro Ser Ala Gln Pro Gly Asp Ser Ser Leu Arg  
 1130 1135 1140

Leu Gln Arg Pro Arg Pro Ala Thr Pro Pro Ser Ser Pro Lys Arg  
 1145 1150 1155

Gly Ser Ala Gly Ala Gln Phe Ala Ile  
 1160 1165

<210> 13  
 <211> 1178  
 <212> PRT  
 <213> Mus musculus

<400> 13

Met Gly Lys Val Gly Ala Gly Asp Gly Ser Ser Ala Gly Leu Ser Ala  
 1 5 10 15

Leu Leu Ala Gly Ala Gly Leu Leu Met Leu Leu Ala Pro Gly Val Cys  
 20 25 30

Ser Ser Leu Ser Cys Cys Pro Pro Gln His Pro Ser Ser Thr Pro Arg  
 35 40 45

Arg Thr Leu Thr Pro Arg Gly Phe Pro His Pro Gly Pro Leu Gly Arg  
 50 55 60



Ala Pro Ala Thr Pro Pro Pro Leu Phe Met Arg Pro Leu Phe Ala Val  
65 70 75 80

Ala Pro Gly Asp Arg Ala Leu Phe Leu Glu Arg Ala Gly Gly Ser Arg  
85 90 95

Val Ser Val Ala Thr Ala Ala Arg Ser Gly Arg Arg Arg Arg Ser Gly  
100 105 110

Thr Glu Pro Glu Lys Ile Glu Pro Gly Glu Gly Ala Ser Arg Ser Arg  
115 120 125

Arg Asp Met Leu Lys Asp Gly Gly Gln Gln Gly Leu Gly Thr Gly Ala  
130 135 140

Arg Asp Pro Gly Lys Ala Thr Arg Phe Arg Met Glu Glu Leu Arg Leu  
145 150 155 160

Thr Ser Thr Thr Phe Ala Leu Thr Gly Asp Ser Ala His Asn Gln Ala  
165 170 175

Met Val His Trp Ser Gly His Asn Ser Ser Val Ile Leu Ile Leu Thr  
180 185 190

Lys Leu Tyr Asp Tyr Asn Leu Gly Ser Ile Thr Glu Ser Ser Leu Trp  
195 200 205

Arg Ser Thr Asp Tyr Gly Thr Thr Tyr Glu Lys Leu Asn Asp Lys Val  
210 215 220

Gly Leu Lys Thr Ile Leu Ser Tyr Leu Tyr Val Cys Pro Thr Asn Lys  
225 230 235 240

Cys Lys Ile Met Leu Leu Thr Asp Pro Glu Ile Glu Ser Ser Leu Leu  
245 250 255

Ile Ser Ser Asp Glu Gly Ala Thr Tyr Gln Lys Tyr Arg Leu Asn Phe  
260 265 270

Tyr Leu Gln Ser Leu Leu Phe His Pro Lys Gln Glu Asp Trp Ile Leu  
275 280 285

Ala Tyr Ser Gln Asp Gln Lys Leu Tyr Ser Ser Ala Glu Phe Gly Arg  
290 295 300

Arg Trp Gln Leu Ile Gln Glu Ser Val Val Pro Asn Arg Phe Tyr Trp  
305 310 315 320

Ser Val Met Gly Ser Ser Lys Glu Pro Asp Leu Val His Leu Glu Ala  
325 330 335

Arg Thr Val Asp Gly His Ser Ile Tyr Leu Thr Cys Arg Met Gln Asn  
340 345 350

Cys Thr Glu Ala Asn Arg Asn Lys Pro Phe Pro Gly Tyr Ile Asp Pro  
355 360 365

Asp Ser Leu Ile Val Gln Asp Asp Tyr Val Phe Val Gln Leu Thr Ser  
 370 375 380  
 Gly Gly Arg Pro His Tyr Tyr Val Ser Tyr Arg Arg Ser Pro Phe Ala  
 385 390 395 400  
 Gln Met Lys Leu Pro Lys Tyr Ala Leu Pro Lys Asp Met His Val Ile  
 405 410 415  
 Ser Thr Asp Glu Asn Gln Val Phe Ala Ala Val Gln Glu Trp Asn Gln  
 420 425 430  
 Asn Asp Thr Tyr Asn Leu Tyr Ile Ser Asp Thr Arg Gly Val Tyr Phe  
 435 440 445  
 Thr Leu Ala Leu Glu Asn Val Arg Ser Ser Arg Gly Pro Glu Gly Asn  
 450 455 460  
 Val Met Ile Asp Leu Tyr Glu Val Ala Gly Ile Lys Gly Met Phe Leu  
 465 470 475 480  
 Ala Asn Lys Lys Ile Asp Asn Gln Val Lys Thr Phe Ile Thr Tyr Asn  
 485 490 495  
 Lys Gly Arg Asp Trp Arg Leu Leu Gln Ala Pro Asp Ala Asp Leu Arg  
 500 505 510  
 Gly Asp Pro Val His Cys Leu Leu Pro Tyr Cys Ser Leu His Leu His  
 515 520 525  
 Leu Lys Val Ser Glu Asn Pro Tyr Thr Ser Gly Ile Ile Ala Ser Arg  
 530 535 540  
 Asp Thr Ala Pro Ser Ile Ile Val Ala Ser Gly Asn Ile Gly Ser Glu  
 545 550 555 560  
 Leu Ser Asp Ser Asp Ile Ser Met Phe Val Ser Ser Asp Ala Gly Asn  
 565 570 575  
 Thr Trp Arg Gln Ile Phe Glu Glu Glu His Ser Ile Leu Tyr Leu Asp  
 580 585 590  
 Gln Gly Gly Val Leu Val Ala Met Lys His Thr Ser Leu Pro Ile Arg  
 595 600 605  
 His Leu Trp Leu Ser Phe Asp Glu Gly Arg Ser Trp Ser Lys Tyr Ser  
 610 615 620  
 Phe Thr Ser Ile Pro Leu Phe Val Asp Gly Val Leu Gly Glu Pro Gly  
 625 630 635 640  
 Glu Glu Thr Leu Ile Met Thr Val Phe Gly His Phe Ser His Arg Ser  
 645 650 655  
 Glu Trp Gln Leu Val Lys Val Asp Tyr Lys Ser Ile Phe Asp Arg Arg  
 660 665 670

Cys Ala Glu Glu Asp Tyr Arg Pro Trp Gln Leu His Ser Gln Gly Glu  
 675 680 685  
 Ala Cys Ile Met Gly Ala Lys Arg Ile Tyr Lys Lys Arg Lys Ser Glu  
 690 695 700  
 Arg Lys Cys Met Gln Lys Tyr Ala Gly Ala Met Glu Ser Glu Pro Cys  
 705 710 715 720  
 Val Cys Thr Glu Ala Asp Phe Asp Cys Asp Tyr Gly Tyr Glu Arg His  
 725 730 735  
 Ser Asn Gly Gln Cys Leu Pro Ala Phe Trp Phe Asn Pro Ser Ser Leu  
 740 745 750  
 Ser Lys Asp Cys Ser Leu Gly Gln Ser Tyr Leu Asn Ser Ala Gly Tyr  
 755 760 765  
 Arg Lys Val Val Ser Asn Asn Cys Thr Asp Gly Val Arg Glu Gln Tyr  
 770 775 780  
 Thr Ala Lys Pro Gln Lys Cys Pro Gly Lys Ala Pro Arg Gly Leu Arg  
 785 790 795 800  
 Ile Val Thr Ala Asp Gly Lys Leu Thr Ala Glu Gln Gly His Asn Val  
 805 810 815  
 Thr Leu Met Val Gln Leu Glu Glu Gly Asp Val Gln Arg Thr Leu Ile  
 820 825 830  
 Gln Val Asp Phe Gly Asp Gly Ile Ala Val Ser Tyr Val Asn Leu Ser  
 835 840 845  
 Ser Met Glu Asp Gly Ile Lys His Val Tyr Gln Asn Val Gly Ile Phe  
 850 855 860  
 Arg Val Thr Val Gln Val Asp Asn Ser Leu Gly Ser Asp Ser Ala Val  
 865 870 875 880  
 Leu Tyr Leu His Val Thr Cys Pro Leu Glu His Val His Leu Ser Leu  
 885 890 895  
 Pro Phe Val Thr Thr Lys Asn Lys Glu Val Asn Ala Thr Ala Val Leu  
 900 905 910  
 Trp Pro Ser Gln Val Gly Thr Leu Thr Tyr Val Trp Trp Tyr Gly Asn  
 915 920 925  
 Asn Thr Glu Pro Leu Ile Thr Leu Glu Gly Ser Ile Ser Phe Lys Phe  
 930 935 940  
 Thr Ser Glu Gly Met Asn Thr Ile Thr Val Gln Val Ser Ala Gly Asn  
 945 950 955 960  
 Ala Ile Leu Gln Asp Thr Lys Thr Ile Ala Val Tyr Glu Glu Phe Arg

Ser Leu Arg Leu Ala Phe Ser Pro Asn Leu Asp Asp Tyr Asn Pro Asp  
980 985 990

Ile Pro Glu Trp Arg Arg Asp Ile Ser Arg Val Ile Lys Lys Ser Leu  
995 1000 1005

Val Glu Ala Thr Gly Ile Pro Ser Gln His Ile Leu Val Ala Val  
1010 1015 1020

Leu Pro Gly Leu Pro Thr Ala Ala Glu Leu Phe Val Leu Pro Tyr  
1025 1030 1035

Gln Asp Gly Thr Arg Glu Asn Lys Arg Ser Pro Glu Asp Leu Glu  
1040 1045 1050

Gln Ile Ser Glu Val Leu Ile His Lys Leu Asn Gln Asn Leu Val  
1055 1060 1065

His Phe Glu Leu Lys Pro Gly Val Gln Val Leu Val His Ala Ala  
1070 1075 1080

His Leu Thr Ala Ala Pro Leu Val Asp Leu Thr Pro Thr His Ser  
1085 1090 1095

Gly Ser Ala Met Leu Met Leu Leu Ser Val Val Phe Val Gly Leu  
1100 1105 1110

Ala Val Phe Val Ile Tyr Lys Phe Lys Arg Lys Ile Pro Gly Ile  
1115 1120 1125

Asn Val Tyr Ala Gln Met Gln Asn Glu Lys Glu Gln Glu Leu Ile  
1130 1135 1140

Asn Pro Val Ser His Ser Glu Ser Arg Pro Ser Val Pro His Pro  
1145 1150 1155

Asp Leu Arg Arg Pro Gly Gln Leu Val Asp Glu Lys Val Glu Ser  
1160 1165 1170

Gln Leu Leu Gly Lys  
1175

<210> 14  
<211> 1168  
<212> PRT  
<213> Homo sapiens  
<400> 14

Met Gly Lys Val Gly Ala Gly Gly Gly Ser Gln Ala Arg Leu Ser Ala  
1 5 10 15

Leu Leu Ala Gly Ala Gly Leu Leu Ile Leu Cys Ala Pro Gly Val Cys  
20 25 30

Gly Gly Gly Ser Cys Cys Pro Ser Pro His Pro Ser Ser Ala Pro Arg  
Page 60

Ser Ala Ser Thr Pro Arg Gly Phe Ser His Gln Gly Arg Pro Gly Arg  
 50 55 60  
 Ala Pro Ala Thr Pro Leu Pro Leu Val Val Arg Pro Leu Phe Ser Val  
 65 70 75 80  
 Ala Pro Gly Asp Arg Ala Leu Ser Leu Glu Arg Ala Arg Gly Thr Gly  
 85 90 95  
 Ala Ser Met Ala Val Ala Ala Arg Ser Gly Arg Arg Arg Arg Ser Gly  
 100 105 110  
 Ala Asp Gln Glu Lys Ala Glu Arg Gly Glu Gly Ala Ser Arg Ser Pro  
 115 120 125  
 Arg Gly Val Leu Arg Asp Gly Gly Gln Gln Glu Pro Gly Thr Arg Glu  
 130 135 140  
 Arg Asp Pro Asp Lys Ala Thr Arg Phe Arg Met Glu Glu Leu Arg Leu  
 145 150 155 160  
 Thr Ser Thr Thr Phe Ala Leu Thr Gly Asp Ser Ala His Asn Gln Ala  
 165 170 175  
 Met Val His Trp Ser Gly His Asn Ser Ser Val Ile Leu Ile Leu Thr  
 180 185 190  
 Lys Leu Tyr Asp Tyr Asn Leu Gly Ser Ile Thr Glu Ser Ser Leu Trp  
 195 200 205  
 Arg Ser Thr Asp Tyr Gly Thr Thr Tyr Glu Lys Leu Asn Asp Lys Val  
 210 215 220  
 Gly Leu Lys Thr Ile Leu Gly Tyr Leu Tyr Val Cys Pro Thr Asn Lys  
 225 230 235 240  
 Arg Lys Ile Met Leu Leu Thr Asp Pro Glu Ile Glu Ser Ser Leu Leu  
 245 250 255  
 Ile Ser Ser Asp Glu Gly Ala Thr Tyr Gln Lys Tyr Arg Leu Asn Phe  
 260 265 270  
 Tyr Ile Gln Ser Leu Leu Phe His Pro Lys Gln Glu Asp Trp Ile Leu  
 275 280 285  
 Ala Tyr Ser Gln Asp Gln Lys Leu Tyr Ser Ser Ala Glu Phe Gly Arg  
 290 295 300  
 Arg Trp Gln Leu Ile Gln Glu Gly Val Val Pro Asn Arg Phe Tyr Trp  
 305 310 315 320  
 Ser Val Met Gly Ser Asn Lys Glu Pro Asp Leu Val His Leu Glu Ala  
 325 330 335

Arg Thr Val Asp Gly His Ser His Tyr Leu Thr Cys Arg Met Gln Asn  
 340 345 350  
 Cys Thr Glu Ala Asn Arg Asn Gln Pro Phe Pro Gly Tyr Ile Asp Pro  
 355 360 365  
 Asp Ser Leu Ile Val Gln Asp His Tyr Val Phe Val Gln Leu Thr Ser  
 370 375 380  
 Gly Gly Arg Pro His Tyr Tyr Val Ser Tyr Arg Arg Asn Ala Phe Ala  
 385 390 395 400  
 Gln Met Lys Leu Pro Lys Tyr Ala Leu Pro Lys Asp Met His Val Ile  
 405 410 415  
 Ser Thr Asp Glu Asn Gln Val Phe Ala Ala Val Gln Glu Trp Asn Gln  
 420 425 430  
 Asn Asp Thr Tyr Asn Leu Tyr Ile Ser Asp Thr Arg Gly Val Tyr Phe  
 435 440 445  
 Thr Leu Ala Leu Glu Asn Val Gln Ser Ser Arg Gly Pro Glu Gly Asn  
 450 455 460  
 Ile Met Ile Asp Leu Tyr Glu Val Ala Gly Ile Lys Gly Met Phe Leu  
 465 470 475 480  
 Ala Asn Lys Lys Ile Asp Asn Gln Val Lys Thr Phe Ile Thr Tyr Asn  
 485 490 495  
 Lys Gly Arg Asp Trp Arg Leu Leu Gln Ala Pro Asp Thr Asp Leu Arg  
 500 505 510  
 Gly Asp Pro Val His Cys Leu Leu Pro Tyr Cys Ser Leu His Leu His  
 515 520 525  
 Leu Lys Val Ser Glu Asn Pro Tyr Thr Ser Gly Ile Ile Ala Ser Lys  
 530 535 540  
 Asp Thr Ala Pro Ser Ile Ile Val Ala Ser Gly Asn Ile Gly Ser Glu  
 545 550 555 560  
 Leu Ser Asp Thr Asp Ile Ser Met Phe Val Ser Ser Asp Ala Gly Asn  
 565 570 575  
 Thr Trp Arg Gln Ile Phe Glu Glu Glu His Ser Val Leu Tyr Leu Asp  
 580 585 590  
 Gln Gly Gly Val Leu Val Ala Met Lys His Thr Ser Leu Pro Ile Arg  
 595 600 605  
 His Leu Trp Leu Ser Phe Asp Glu Gly Arg Ser Trp Ser Lys Tyr Ser  
 610 615 620  
 Phe Thr Ser Ile Pro Leu Phe Val Asp Gly Val Leu Gly Glu Pro Gly  
 625 630 635 640

Glu Glu Thr Leu Ile Met Thr Val Phe Gly His Phe Ser His Arg Ser  
 645 650 655  
 Glu Trp Gln Leu Val Lys Val Asp Tyr Lys Ser Ile Phe Asp Arg Arg  
 660 665 670  
 Cys Ala Glu Glu Asp Tyr Arg Pro Trp Gln Leu His Ser Gln Gly Glu  
 675 680 685  
 Ala Cys Ile Met Gly Ala Lys Arg Ile Tyr Lys Lys Arg Lys Ser Glu  
 690 695 700  
 Arg Lys Cys Met Gln Gly Lys Tyr Ala Gly Ala Met Glu Ser Glu Pro  
 705 710 715 720  
 Cys Val Cys Thr Glu Ala Asp Phe Asp Cys Asp Tyr Gly Tyr Glu Arg  
 725 730 735  
 His Ser Asn Gly Gln Cys Leu Pro Ala Phe Trp Phe Asn Pro Ser Ser  
 740 745 750  
 Leu Ser Lys Asp Cys Ser Leu Gly Gln Ser Tyr Leu Asn Ser Thr Gly  
 755 760 765  
 Tyr Arg Lys Val Val Ser Asn Asn Cys Thr Asp Gly Val Arg Glu Gln  
 770 775 780  
 Tyr Thr Ala Lys Pro Gln Lys Cys Pro Gly Lys Ala Pro Arg Gly Leu  
 785 790 795 800  
 Arg Ile Val Thr Ala Asp Gly Lys Leu Thr Ala Glu Gln Gly His Asn  
 805 810 815  
 Val Thr Leu Met Val Gln Leu Glu Glu Gly Asp Val Gln Arg Thr Leu  
 820 825 830  
 Ile Gln Val Asp Phe Gly Asp Gly Ile Ala Val Ser Tyr Val Asn Leu  
 835 840 845  
 Ser Ser Met Glu Asp Gly Ile Lys His Val Tyr Gln Asn Val Gly Ile  
 850 855 860  
 Phe Arg Val Thr Val Gln Val Asp Asn Ser Leu Gly Ser Asp Ser Ala  
 865 870 875 880  
 Val Leu Tyr Leu His Val Thr Cys Pro Leu Glu His Val His Leu Ser  
 885 890 895  
 Leu Pro Phe Val Thr Thr Lys Asn Lys Glu Val Asn Ala Thr Ala Val  
 900 905 910  
 Leu Trp Pro Ser Gln Val Gly Thr Leu Thr Tyr Val Trp Trp Tyr Gly  
 915 920 925  
 Asn Asn Thr Glu Pro Leu Ile Thr Leu Glu Gly Ser Ile Ser Phe Arg  
 930 935 940

Phe Thr Ser Glu Gly Met Asn Thr Ile Thr Val Gln Val Ser Ala Gly  
 945 950 955 960  
 Asn Ala Ile Leu Gln Asp Thr Lys Thr Ile Ala Val Tyr Glu Glu Phe  
 965 970 975  
 Arg Ser Leu Arg Leu Ser Phe Ser Pro Asn Leu Asp Asp Tyr Asn Pro  
 980 985 990  
 Asp Ile Pro Glu Trp Arg Arg Asp Ile Gly Arg Val Ile Lys Lys Ser  
 995 1000 1005  
 Leu Val Glu Ala Thr Gly Val Pro Gly Gln His Ile Leu Val Ala  
 1010 1015 1020  
 Val Leu Pro Gly Leu Pro Thr Thr Ala Glu Leu Phe Val Leu Pro  
 1025 1030 1035  
 Tyr Gln Asp Pro Ala Gly Glu Asn Lys Arg Ser Thr Asp Asp Leu  
 1040 1045 1050  
 Glu Gln Ile Ser Glu Leu Leu Ile His Thr Leu Asn Gln Asn Ser  
 1055 1060 1065  
 Val His Phe Glu Leu Lys Pro Gly Val Arg Val Leu Val His Ala  
 1070 1075 1080  
 Ala His Leu Thr Ala Ala Pro Leu Val Asp Leu Thr Pro Thr His  
 1085 1090 1095  
 Ser Gly Ser Ala Met Leu Met Leu Leu Ser Val Val Phe Val Gly  
 1100 1105 1110  
 Leu Ala Val Phe Val Ile Tyr Lys Phe Lys Arg Arg Val Ala Leu  
 1115 1120 1125  
 Pro Ser Pro Pro Ser Pro Ser Thr Gln Pro Gly Asp Ser Ser Leu  
 1130 1135 1140  
 Arg Leu Gln Arg Ala Arg His Ala Thr Pro Pro Ser Thr Pro Lys  
 1145 1150 1155  
 Arg Gly Ser Ala Gly Ala Gln Tyr Ala Ile  
 1160 1165